# PARIS UNIVERSAL EXHIBITION, 1878.

# HANDBOOK

AND

# OFFICIAL CATALOGUE

OF

# THE CANADIAN SECTION.

PUBLISHED UNDER THE DIRECTION OF

THOMAS C. KEEFER, M. Inst. C.E.,

EXECUTIVE COMMISSIONER.

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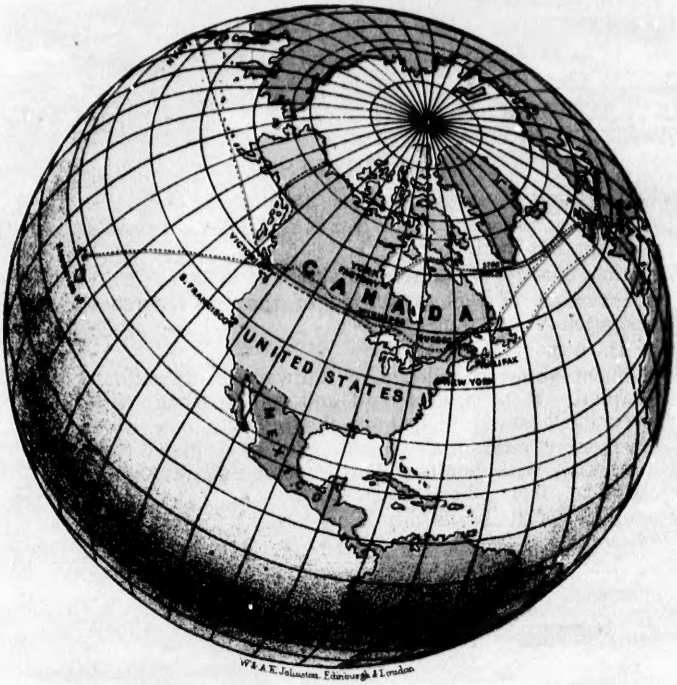


# CANADIAN SECTION.

HANDBOOK AND OFFICIAL CATALOGUE

# INTRODUCTION.

CANADA does not exhibit at Paris in the Machinery Gallery, having had no space allotted to her there. On account of the distance and the intervening ocean, she does not send her horses, cattle, sheep, or swine for competition with those of Europe; and for the same reason she sends no perishable articles, no dairy products, fruits, or vegetables. It may on this account be permitted, in order to supplement her exhibit of 1878, to refer to what she did at Philadelphia in 1876.

At the Centennial, Canada occupied a space of 24,118 ft. in the Main Building, 10,387 ft. in the Agricultural Hall, 5,000 ft. in the Machinery Hall, 5,000 ft. in the Pomological Hall, 3,000 ft. in the Dairy Hall, 1,015 ft. in the Carriage Annexe, a complete room in the Memorial (or Fine Arts) Hall, besides a section in the Women's Pavilion.

Colonel Sandford, the British Executive Commissioner, in his official report, states that Canada made at Philadelphia "a display of fine arts, raw produce, manufactures "in all departments, horses, and cattle which excited the "astonishment of even Canada's immediate neighbours."

John Anderson, Esq., LL.D., in his Report on Machine Tools, &c., says :—

"Great Britain and Canada occupied the best position in the Machinery Hall. If we were to take the Canadian exhibition in connexion with the British, and consider them as one, in the same manner as was done in the united German Empire, then, indeed, the extent was greater than all the rest of the world, exclusive of the United States. England had seven distinct exhibitors of machine tools,

four of the number having but one machine. This paucity of tools from the nation which has hitherto taken the lead, both in devising and making, is a painful circumstance to mention, but the truth must be told. Fortunately Canada made a good display in tools, which to some extent veiled over the shortcomings of the mother country. There were 30 exhibitors of machine tools from Canada, and no other country produced a stronger feeling of surprise by the extent and excellence of the general machinery exhibit than did that colony.

"The Canadian exhibition, when considered in relation to the number of its population and to the comparatively short period that has elapsed since she gave herself resolutely to engineering, was truly noble. Although one of the youngest competing nations in mechanical tools, yet it contained many admirable specimens which would have done honour to any country.

"Canada was fortunate at Philadelphia, in having her position assigned at the chief entrance to the Machinery Hall, where the majority of visitors had to pass through the space containing her products.

"For some unexplained reason no collection was more freely commented upon or had any apparent fault pointed out so repeatedly as the young competitor, and it may be safely added that no nation has derived more benefit from the practical teaching of that great educator, the Centennial Exhibition, than did that country. Canadian machinery has a character of its own; unlike some of the Continental nations, theory has not gone before practice, from the circumstance that her engineering knowledge and experience, have not reached the foundry and smithy through the technological college, or the classroom, but rather through the teachings and promptings of necessity, and from contact with the mother country and her immediate neighbours. Hence it is that the style is a mixture of English and American, but more of the latter than the former, the machine tools for metal resembling the English, those for wood being rather American, but with a considerable trace of original thinking interspersed throughout

all. Besides, there is a freshness and youthful vigour manifested both in design and execution that foretell the future giant."

* * * * *

"In the finer department of machine tools, Canada came out nobly, and in some measure made up for the brief list from the mother country. One firm in particular, McKechnie and Bertram, of Dundas (Ontario), made a fine exhibit both for metal and wood. Coming from Canada, it took all nations by surprise. The machine tools for metal were mostly after the English style, inclining rather to Leeds than to Manchester. Perhaps their most perfect tool was a large slotting machine of fine proportions, most consistently carried out in all the details, with every part in good keeping with the other, which is a rare virtue, and seldom manifested by those makers who can only imitate."

John Coleman, Esq., in his report on Agricultural Machinery, says:—With few exceptions the Exhibition of Agricultural Machinery was confined to the United States and Canada. The Canadians exhibited a number of ploughs, some of excellent design, made very much after the English model, only stronger in the mould board. The Canadian reaping machines, principally formed on American models, were both numerous and highly creditable, especially with the exhibits of L. D. Sawyer and Co., of Hamilton, Ontario, which the judges considered of high merit. Reaping and mowing machines have reached a high state of perfection in the States, and it is satisfactory to find that Canada is not behind.

Canada, following the English patents, takes a decided lead in chaff-cutting machinery; some excellent machines both for chaff-cutting, pulping and slicing, were shown by John Watson, of Ayr, Ontario, which, both for size and useful variety, are most creditable. David Maxwell, of Paris, Ontario, was also a successful exhibitor; nor must I omit to mention a very effective hand-cutter, without wheel or gearing, of Mr. A. Anderson, London, Ontario, which commanded an extensive sale.

In the above report I have endeavoured to describe some of the more important exhibits, which in the American and Canadian sections were particularly admirable.

In the report on cattle by Thos. Duckham, Esq.—after showing the entries of all kinds to have been in the following proportions, United States, 475; Canada, 99; England, 6—he goes on to say: "My report would not be complete were I to omit a special notice of the superior excellence of many of the short-horns from the Dominion of Canada, as being of the highest order of merit."

Mr. Owen C. Richards, in his report on sheep shows that out of the 62 exhibits from Canada, 25 obtained awards.

Mr. G. W. Baker's report on swine shows that out of a total of 27 Canadian exhibits, 23 obtained awards.

According to the Canadian Commissioners' Report, out of 68 horses exhibited by Canada at Philadelphia, 52 carried off prizes; of 72 horned cattle, 33 took prizes; out of 56 sheep, 24 took prizes; and for 27 grown animals in swine, 29 received prizes, some taking more than one prize.

In poultry and pigeons, of which Canada exhibited 300 specimens; out of 133 Canadian exhibits (not including pigeons) 129 received the highest mark of merit. 51 prizes were obtained for Canadian poultry, but each one was for an exhibit comprising more than one bird.

In cheese, at the Centennial, out of 100 awards, 49 were given to Canada, 45 to the United States, the remainder to other countries.

In manufactures and machinery of all kinds Canadian exhibits took 170 prizes at Philadelphia in 1876.

A distinguished American pomologist from Illinois, writing of the fruit exhibition at the Centennial in 1876, says:—"Decidedly the best show, taking into consideration "variety, quality, number and taste, is from Ontario, "Canada." A writer in the New York Graphic of October 11th, 1876, says, "Probably the finest show of various "fruits is made by the Fruit Growers' Association of "Ontario, Canada."

This exhibit occupied two tables extending the entire length of the hall, which was about 200 feet long, and comprised not less than 1,480 plates of apples, 200 plates of pears, 290 plates of plums, 173 plates of grapes, 26 plates of peaches, 86 plates of crab-apples, and some 20 plates of miscellaneous fruits, nuts, &c.

General Hawley, President of the Centennial Commission, on the occasion of a public reception of Canadian Schoolmasters, said, "Canada had done more for the success "of the Centennial Exhibition than any eight States "of the American Union, with the exception of New Jer- "sey and Pennsylvania."

The number of Centennial medals taken by Canadian exhibitors was 564 in all.

# CANADA.

THE Dominion of Canada, which now extends from the North Atlantic to the North Pacific oceans, a breadth of over 3,000 miles, comprises all that portion of the continent of North America between the United States and the Arctic Ocean, except Alaska; or the whole of British North America, with the exception of the Island of Newfoundland—which has not yet become a member of the Canadian Confederacy.

The continental area of Canada is upwards of 3,000,000 square miles; in territorial area being only exceeded by the Russian and British empires, China, the United States of America, and possibly Brazil.

The wheat zone of Canada exceeds one million of square miles, or over 600,000,000 of acres.

Of the total area of the Dominion, upwards of 2,000,000 square miles are agricultural and timbered lands, and of these the wheat zone occupies about one half. The remainder has been but partially explored, but is known to contain valuable minerals, fur-bearing animals, and fisheries.

The Dominion was constituted in 1867 by the voluntary confederation of the provinces of Ontario, Quebec, Nova Scotia, and New Brunswick, all having legislatures and a government responsible to the people. At the same time provision was made for the admission of the other British North American colonies in like position, two of which, British Columbia and Prince Edward Island, have since become members, leaving Newfoundland the sole representative of the old colonial system in British North America.

Under the Dominion the vast extent of land claimed by the Hudson's Bay Company has been acquired, and out of a part of it the new province of Manitoba has been organized upon the basis of self-government. For the remainder of this great area, territorial governments, all the members of which are appointed by the Dominion Government, have been established.

## GEOGRAPHY.

The physical features of Canada embrace an extensive navigable lake and river system, forests of valuable timber, fertile prairies, mountains rich in minerals, and waters abounding in the best descriptions of fish.

The drainage system of the Dominion is eastward to the Atlantic, westward to the Pacific, and northward to the Arctic Ocean and Hudson's Bay.

The valley of the St. Lawrence penetrates the continent by a navigable route to a distance of about 2,000 miles from the ocean, giving a coast line of inland navigation for the export of its productions of at least 5,000 miles; and, notwithstanding this length, it nowhere attains a high elevation, Lake Superior being only 600 feet above sea-level. The Pacific slope, with only one third the length, attains three times the height of that of the Atlantic.

This great basin of the St. Lawrence covers an area of 400,000 square miles, exclusive of lakes and rivers, which, including the gulf, have an area of 130,000 square miles. About 70,000 square miles belong to the United States, leaving 330,000 to Canada, 280,000 of which is upon the north side of the St. Lawrence, embracing not only some of the finest agricultural and timbered lands, but also the great northern hill region, or Laurentian system, the oldest known rock formation of the globe, rich in iron, copper, lead, silver, phosphates, plumbago, mica, barytes, asbestos, &c.

Between the two ocean watersheds the Dominion possesses the great northern basin of the Saskatchewan, the elevation of which is so low as to give a milder winter climate as well as a more fertile soil than obtains in regions hundreds of miles to the south of it.

The great lakes, the largest and purest body of fresh water in the world, have an area of 90,000 square miles, a depth of from 100 to 800 feet, with elevations varying from 200 to 600 feet above tide, as follows:—

| —— | Length. | Breadth. | Depth. | Elevation above Sea. | Area in Sq. Miles. |
|---|---|---|---|---|---|
| | Miles. | Miles. | Feet. | Feet. | |
| Superior - - | 460 | 170 | 800 | 600 | 31,500 |
| Michigan - - | 330 | 90 | 700 | 576 | 22,000 |
| Huron - - | 260 | 110 | 700 | 574 | 21,000 |
| Erie - - - | 250 | 60 | 200 | 565 | 9,000 |
| Ontario - - | 180 | 60 | 600 | 235 | 6,400 |

The calculated discharge from the upper lakes by the Niagara river is over twenty millions of cubic feet per minute, and as this does not represent more than half the rainfall upon the drainage area of their basins, it is assumed that the evaporation is equivalent to the volume discharged by the outlets to the sea.

The lake system of the prairie region is low in altitude, covers an area of over 13,000 square miles, and is as follows:—

| | Sq. Miles. | | Feet. |
|---|---|---|---|
| Winnipeg - | area 8,500 ; | above sea, | 650 |
| Manitoba - | „ 1,900 | „ „ | 670 |
| Winnepegosis - | „ 1,936 | „ „ | 692 |
| Cedar Lake - | „ 312 | „ „ | 688 |
| Dauphin Lake | „ 170 | „ „ | 700 |

The four principal rivers on the eastern, northern, and western watersheds of Canada are—

| | Miles. | | Sq. Miles. |
|---|---|---|---|
| St. Lawrence | length, 1,500 ; | drainage area, | 330,000 |
| Saskatchewan and Nelson | „ 1,500 | „ „ | 450,000 |
| Mackenzie | „ 1,200 | „ „ | 440,000 |
| Frazer | „ 450 | „ „ | 30,000 |

The western portion of Canada, between the Rocky Mountains and the Pacific Ocean, is a high and mountainous region, some 800 miles in length, parallel with the coast, and 400 miles in breadth. The coast range of mountains, which hugs the sea, is separated from the "Rockies" by a wide elevated plateau, holding mountain and valley, timber and prairie land, with rivers whose sands give gold.

## CLIMATE.

If the climate of a country is to be measured by its productions, then Canada, either in the quality of her timber, grains, fruits, plants, and animals, not excepting man, must be accorded a front rank.

Her extremes of cold, though of short duration, and her invaluable winter covering of snow, have given her an Arctic reputation—acquired in the past when the fur trade was her only export, and when the savage was "lord of the soil." Furs are suggestive of cold and snow, and these have obliterated from memory the heat of the Canadian summer, whereby the range of production is extended, in grains, from barley to maize, in fruits, from apples to peaches, grapes, melons, nectarines, and apricots; in vegetables, from turnips, carrots, and cabbages, to the egg plant and tomatoes.

Snow and ice, however objectionable they may be in other countries, are no drawback to the Canadian winter.

To Canada they mean not only protection to her cultivated acres, almost as valuable as a covering of manure, but the conversion of whole areas, during several months in the year, to a surface upon which every man may make his own road, equal to a turnpike, in any direction, over swamp or field, lake or river, and on which millions of tons are annually transported at the minimum cost,—whereby employment is afforded for man and horse when cultivation is arrested by frost.

Intensity of winter cold has little effect upon the agriculture of a country except the beneficial one of pulverising the soil where exposed. High spring and summer temperatures, with abundance of rain, secure the certain ripening of maize and the melon in Canada.

On the other hand (for the continent of America), on the lines of latitude where frost and snow cease, malignant fevers commence, and in the tropical zones the trees become dwarfed by a rank growth of vegetation. In a country so extensive as Canada there is a great difference in climate on the same lines of latitude, which is due rather to longitude than to elevation above the sea. Like Europe, the western coast is the warmest, and for the same reason,—warm winds and waters from the adjacent ocean. The difference between the mean annual temperature of the Atlantic and Pacific coasts of Canada for the same latitude is stated to be 25 per cent., and thus wheat is raised with profit in lat. 60 N., long. 122° 31′ W. In lat. 48° 31′ N., long. 93° 28′ W., wheat is sown in May and reaped the latter end of August, after an interval of 120 days.

The great prairie region of Canada has a mean summer temperature of 60°, with abundance of rain ; the winters cold and dry ; climate and soil similar to that part of Russia where large cities are found. This region is free from pulmonary complaints and fevers of every type.

In lat. 51° 30′ N. (Touchwood Hills) cattle remain in the open air all winter, finding pasturage under the snow.

Locally, the climate of interior Canada is very much influenced by the vast extent of her lake system. Thus the water at the surface of Lake Superior is usually the same as the mean temperature, 40° to 42° Fahrenheit, but at 60 feet below the surface the temperature is invariably 38°.

While the deep and therefore cold waters of Lake Superior cool the surrounding heights, the shallow waters of the Winnipeg Basin become warm in summer, and very

sensibly influence the temperature of the low level prairies adjacent thereto.

The forest regions of Canada temper the northern winds and with their extensive lake reservoirs regulate the discharge of the numerous streams, preventing those destructive freshets which prove so disastrous in many countries.

The great lakes never freeze, but the numerous and shallow ones of the prairie and woodland regions are made highways by the ice in winter, the freezing and thawing of which act as a brake upon the temperature, preventing, by the alternate setting free and absorption of heat, early frosts in autumn and the too rapid development of vegetation in the spring.

The severity of the winter climate, as well as the short summers of the Atlantic coast, north of the St. Lawrence are little felt in a district which is a mineral and timber region rather than an agricultural one; both are more than compensated for by the great wealth of the fisheries, which is due to the cause that produces this exceptional local temperature, viz., the Arctic current, which, loaded with fish food, hugs the coast, and thus makes it the summer resort of an inexhaustible supply of the best commercial fish in the world. Even the elsewhere useless or injurious ice, is here the raft upon which millions of seal, valuable both for their skins and oil, are brought within easy reach of the hunter.

A distinguished United States writer, the Hon. David A. Wells, thus vindicates the climate of one part of Canada in the "North American Review" for Sept. 1877:—

"North of Lakes Erie and Ontario, and the river "St. Lawrence, east of Lake Huron, south of the "45th parallel, and included mainly within the present "Dominion province of Ontario, there is as fair a country "as exists on the North American continent, nearly as "large in area as New York, Pennsylvania, and Ohio "combined, and equal if not superior to these states in its "agricultural capacity. It is the natural habitat on this "continent of the combing wool sheep, without a full, "cheap, and reliable supply of the wool of which species the "great worsted manufacturing interest of the country "cannot prosper, or we should rather say exist. It is the "land where grows the finest barley, which the brewing "interest of the United States must have if it ever expects "to rival Great Britain in its present annual export of "over $11,000,000 of malt products. It raises and grazes

" the finest of cattle, with qualities especially desirable to " make good the deterioration of stock in other sections, " and its climatic conditions, created by an almost encircle- " ment of the great lakes, specially fit it to grow men.

" Such a country is one of the greatest gifts of Provi- " dence to the human race better than bonanzas of silver " or rivers whose sands contain gold."

## AREA AND POPULATION.

The last census, taken April 3rd, 1871, stated the total population of the Dominion to amount to 3,602,596. This is exclusive of Indians, who then numbered 102,358, and is divided as follows :—

TABLE showing the Area and Population (exclusive of Indians) of what now constitutes the Dominion of Canada, viz.: the Provinces of Ontario, Quebec, Nova Scotia, New Brunswick, Prince Edward's Island, Manitoba, the North-west Territories, and British Columbia.

| Provinces. | Area in Square Miles. | Population in 1871 (the date of the last Census). |
|---|---|---|
| Ontario - - - - | 107,780 | 1,620,851 |
| Quebec - - - - | 193,355 | 1,191,516 |
| Nova Scotia - - - - | 21,731 | 387,800 |
| New Brunswick - - - | 27,322 | 285,594 |
| Prince Edward's Island - - | 2,173 | 94,021 |
| Manitoba - - - - | 14,340 | 12,228 |
| North-west Territories - - | 2,750,000 | — |
| British Columbia - - - | 220,000 | 10,586 |
| | 3,338,701 | 3,602,596 |

It is estimated that the total population in 1878 is, in round numbers, 4,000,000.

The population of the four provinces forming the Dominion at the census of 1871 consisted, to the extent of more than four-fifths, of natives of British North America. These numbered 2,900,531, of whom 1,138,794 were natives of Ontario, 1,147,664 of Quebec, 360,832 of Nova Scotia, 245,068 of New Brunswick, 405 of Manitoba and British Columbia, and 7,768 natives of Prince Edward's Island and Newfoundland. Of alien born inhabitants the most numerous at the census of 1871 were 219,451 natives of Ireland, 144,999 of England and Wales, 121,074 of Scotland, 64,447 natives of the United States, and 24,162 natives of Germany.

The number of members of each religious creed in the Dominion was as follows at the census of April 3rd 1871 :—

| | |
|---|---|
| Roman Catholics - - | 1,492,029 |
| Presbyterians - - - | 544,998 |
| Anglicans - - - - | 494,049 |
| Wesleyans and other Methodists | 567,091 |
| Baptists - - - | 239,343 |
| Lutherans - - - | 37,935 |
| Congregationalists - - | 21,829 |
| Miscellaneous creeds - - | 65,857 |
| Of "no religion" - - | 5,575 |
| No creed stated - - - | 17,055 |
| Total - - | 3,483,761 |

TABLE showing the Increase in the Population of the Dominion from 1784 to 1871, the date of the last Census.

| Years. | Ontario. | Quebec. | Nova Scotia. | New Brunswick. | Prince Edward's Island. | Manitoba. | North-west Territories. | British Columbia. | Total Population of Settlements. |
|---|---|---|---|---|---|---|---|---|---|
| 1784 | 10,000 | 113,012 | 30,000 | — | 3,000 | — | — | — | 166,256 |
| 1806 | 70,718 | 250,000 | 64,000 | 35,000 | 9,676 | — | — | — | 455,899 |
| 1834 | 321,145 | 570,000 | 190,000 | 119,457 | 33,000 | 3,356 | — | — | 1,302,961 |
| 1844 | 556,662 | 697,084 | 225,000 | 160,000 | 54,000 | 5,143 | — | — | 1,802,889 |
| 1851 | 952,004 | 950,000 | 276,854 | 193,800 | 67,000 | 5,600 | 200 | 100 | 2,547,158 |
| 1861 | 1,396,091 | 1,111,566 | 330,857 | 252,047 | 80,000 | 8,668 | 1,400 | 6,000 | 3,323,292 |
| 1871 | 1,620,851 | 1,191,516 | 387,800 | 285,594 | 94,021 | 12,228 | — | 10,586 | 3,602,596 |

## CONSTITUTION OF CANADA.

The Constitution of Canada is regulated by the British North America Act of 1867, 30 Vict. cap. 3.

The Executive Government and authority is vested in the Queen of Great Britain, who governs through the person of a Governor-General appointed by her, but paid by Canada.

A Council known as "The Queen's Privy Council for Canada," taken only from members of the Dominion Parliament, forms a ministry which must possess the confidence of a majority in the House of Commons. The members of this Council are from time to time summoned by the Governor-General, and may be dismissed by him.

The command of the Dominion military, both enrolled and volunteer forces, or active militia, is vested in the Queen who appoints an officer of the British army of not less rank than a Major-General, who is paid by Canada.

The seat of Government is at Ottawa.

There is one Parliament for Canada, consisting of the Queen, an Upper House styled the Senate, and a Lower House styled the House of Commons.

The Senate consists of 78 members appointed for life by the Governor in Council, 24 from Ontario, 22 from Quebec, 12 from Nova Scotia, 12 from New Brunswick, 2 from Manitoba, 3 from British Columbia, and 3 from Prince Edward's Island. Each Senator must be 30 years of age, a born or naturalized subject, and possessed of property in his own province, real or personal, of the value of $4,000.

Provision is made for appointing a limited number of additional Senators in case of need, but such appointments being made, vacancies thereafter occurring are not to be filled except from like necessity until the total number is again reduced to 78.

The House of Commons consists of 206 members, elected for 5 years on the basis of representation by population for the older provinces, there being now one representative to every 17,000 souls, as follows:—

| | | |
|---|---|---|
| Ontario | 92 | On basis of population. |
| Quebec | 65 | |
| Nova Scotia | 18 | |
| New Brunswick | 14 | |
| Manitoba | 5 | By terms of Union. |
| British Columbia | 6 | |
| Prince Edward's Island | 6 | |

The Governor-General has power to dissolve the House before the five years term has expired.

The census, on which representation is based, is taken every 10 years, the last being taken in 1871.

Bills for appropriating any part of the public revenue, or imposing any tax or impost must originate in the House of Commons, but no such bill can be introduced except recommended by the message of the Governor-General.

The privileges and immunities of the House of Commons are regulated by themselves, but must not exceed those enjoyed by the Imperial House of Commons Sittings are yearly and there is a new Parliament every five years.

The voting for the election of members is by ballot.

The Naturalization Laws are as follows:—

1. Alien women married to British subjects become *ipso facto* naturalized British subjects.

2. Aliens after three years' residence bringing certificates of good character, on taking the oath of residence and allegiance before a judge, commissioner, or magistrate, and causing the same to be registered in a Court of Record, can

have a certificate of naturalization given them and enjoy all privileges of British subjects.

The qualifications for voters in the different provinces are as follows (Indians excepted) :—

In Ontario and Quebec. — The voter must be a male subject. In cities and towns the owner, occupier, or tenant of real property of an assessed value of $300, or of the yearly value of $30; and, in country districts, of the assessed value of $200, or yearly value of $20.

In New Brunswick.—Possession of real estate to the value of $100; or personal estate to the value of $400; or $40 annual income.

In Nova Scotia.—Real estate of the value of $150, personal estate of the value of $400.

In Manitoba. — Any male British subject after three months' residence in his electoral district and being the owner of real estate to the value of $100, or yearly tenant of premises of the value of $200, or paying $20 rent.

In British Columbia. — Any British subject after 12 months' residence in his electoral district.

In Prince Edward's Island.—Owner of either freehold or leasehold property, or both, to the value of $400, and after 12 months' residence in his electoral district.

There is no State Church.

## ADMINISTRATION OF GOVERNMENT.

The business of the country is transacted by the members of the Cabinet, each of whom presides over a Department.

These Departments are as follows:—

(1.) The Governor-General's Office.

(2.) The Privy Council Office, with charge of State papers and records of Council.

(3.) The Department of the Minister of Justice and Attorney-General, or Crown Law Office, including the management of penitentiaries.

(4.) The Department of the Minister of Public Works, over Dominion canals, railways, and public buildings.

(5.) The Department of the Minister of the Interior, including—

*a.* Management of Indians.

*b.* Dominion lands.

*c.* Geological Survey.

(6.) The Department of the Secretary of State, including—

*a.* Official correspondence with the Governor-General's Office and the Lieutenant-Governors of the Provinces.

*b.* The printing and publishing of the Official Canada Gazette.

*c.* The registration of all public legal documents.

*d.* The Government Stationery and Queen's Printer's Office.

*e.* The mounted police.

(7.) The Department of the Minister of Marine and Fisheries: including, construction and maintenance of lighthouses; river police; revenue coast guard; quarantine; protection of fisheries; and fish culture.

(8.) The Department of the Minister of Militia and Defence: including, militia; fortification; and military schools.

(9.) The Department of the Minister of Finance: including, treasury board; Government savings bank; and audit.

(10.) The Department of the Minister of Customs.

(11.) The Department of the Minister of Inland Revenue: including, collection of the excise; canal and "timber slide" tolls; ferry dues and fees for timber cutting (Dominion lands); and the carrying out of the Acts relating to the inspection of food, gas, weights and measures, &c.

(12.) The Department of the Postmaster-General, including Post Office Savings Banks.

(13.) The Department of Agriculture and Arts: including, the Patent Office; Census and Statistical Office; as also immigration.

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By the Act of Union the Dominion Government has control of all matters which by that Act are not specially delegated to the Provinces. It has power generally to make laws for the peace and good government of the whole Dominion, as also to regulate—

1. Public debt and property.
2. Trade and commerce.
3. Indirect taxation.
4. Borrowing on the public credit.
5. The postal service.
6. The census and statistics.
7. Militia and defence.
8. Salaries of civil and other officers.
9. Lighthouse service.
10. Navigation and shipping.
11. Quarantine.

12. Fisheries.
13. Currency and banking.
14. Legal tender and coinage.
15. Weights and measures.
16. Bankruptcy and insolvency.
17. Invention and discovery.
18. Naturalization.
19. Marriage and divorce.
20. Penitentiaries.
21. Criminal law, except the constitution of courts of criminal jurisdiction but including procedure in criminal matters.
22. Ferries, railways, canals, or telegraphs between two provinces or a province and any foreign country, or any work not entirely within the limit of one province. It may also declare by Act of Parliament that any such works, although entirely in *one* province, are for the public general good, and so to be controlled by the Dominion.

## PROVINCIAL CONSTITUTIONS.

The Government of Canada appoints a Lieutenant-Governor for each of the provinces, whose salary is paid by the Dominion.

Each province has its own elective parliament and administration, with full power to regulate its own local affairs as set forth by the Confederation Act; to dispose of its revenues and enact such laws as it may deem best for its own internal welfare, provided only that such laws do not interfere with and are not adverse to the legislation of the Federal Government.

The Dominion Government assumed all the debts of the provinces existing at the time of confederation, agreeing at the same time to pay the provinces an annual subsidy in lieu of the customs revenues (or the right of indirect taxation) surrendered by them to the Dominion.

The debts assumed are for—

| | $ | c. |
|---|---|---|
| Ontario and Quebec (the old province of Canada) - - | 73,006,088 | 84 |
| Nova Scotia - - - | 10,741,035 | 00 |
| New Brunswick - - | 8,176,680 | 00 |
| Manitoba - - - | 551,447 | 00 |
| British Columbia - - | 1,916,284 | 00 |
| Prince Edward's Island - - | 4,701,050 | 00 |
| Total - | $99,092,584 | 84 |

The subsidy is based upon an annual grant equal to 80 cents per head of the population of the four provinces originally forming the Dominion as ascertained by the census of 1861, except in the case of Nova Scotia and New Brunswick, where it is to be based upon the census of each succeeding decennial until the total population of each should amount to 400,000.

The subsidies payable contain other items beyond the 80 cents. per head of the population. Thus—

| | $ c. | $ c. |
|---|---|---|
| Ontario, 80 c. on population of 1861 - - - - | 1,116,872 80 | |
| Allowance for government - | 80,000 00 | |
| | | 1,196,872 80 |
| Quebec, 80 c. on population of 1861 - - - - | 889,252 80 | |
| Allowance for government - | 70,000 00 | |
| | | 959,252 80 |
| Nova Scotia, 80 c. on population of 1871 - - - - | 310,240 00 | |
| Allowance for government - | 60,000 00 | |
| | | 370,240 00 |
| New Brunswick, 80 c. on population of 1871 - - - - | 228,475 20 | |
| Allowance for government - | 50,000 00 | |
| Do. for export duty - | 150,000 00 | |
| | | 428,475 20 |
| British Columbia, 80 c. on estimated population of 60,000 - | 48,000 00 | |
| Allowance for government - | 35,000 00 | |
| Do. for land - - | 100,000 00 | |
| | | 183,000 00 |
| Prince Edward's Island, 80 c. on population of 1871 - - | 75,216 80 | |
| Allowance for government - | 30,000 00 | |
| Do for land - - | 45,000 00 | |
| | | 150,214 80 |
| Manitoba, 80 c. on estimated population of 17,000 - - | 13,600 00 | |
| Allowance for government - | 30,000 00 | |
| | | 43,600 00 |

Besides these sums, which may be considered the subsidies proper, each province was authorised to enter confederation with a definite debt, which, in the year 1873, was further increased; and for any amount by which the debt fell short of the amount authorised, interest was to be paid to them with the semi-annual subsidy. All the provinces, except Ontario and Quebec, had such an unused balance of the authorised debt, so that the sums actually paid as subsidy were, in 1876–7, to Nova Scotia $520,444 40, to New Brunswick $511,329 21.

Manitoba is peculiarly situated. It also was allowed a debt which it might increase, and, as it had none, it drew

the interest of this with its subsidy, making in the first year a total of about $67,000; but as its expenditure increased it drew against the authorised debt till it reduced the annual receipts so much as not to be able to meet its expenditure. Under these circumstances it was ordered that, pending increase of subsidy, which would take place in 1881, and the question of what allowance was to be made to it for lands, the annual payment should not fall short of $90,000.

The total amount paid is always $90,000.

The provinces have retained possession of the lands belonging to them before confederation.

They also appoint all the officers required for the administration of justice with the single exception of the judges.

They regulate—

1. Education.
2. Asylums, hospitals, charities, and elemosynary institutions.
3. Common gaols, prisons, and reformatories.
4. Municipal institutions.
5. Shop, tavern, and other licenses.
6. Local works.
7. Marriage.
8. Property and civil rights.
9. Administration of justice so far as the constitution, maintenance, and organization of provincial courts of both civil and criminal jurisdiction, and the appointment of magistrates or justices of the peace are concerned.

Emigration and immigration are subjects of both federal and local legislation, but local laws on this subject must not conflict with federal enactments.

The general principles of the Canadian Constitutions are, representative governments by ministers responsible to the people, a Federal Government having charge of the public general good, and Provincial Governments attending to merely local and provincial interests.

The provinces have not, like the states of the American Union, any power to organize and maintain a provincial military force.

Nor have they final legislation, the Dominion Government possessing the power to veto any act which is *ultra vires*.

## DEPARTMENT OF JUSTICE.

The Minister of Justice is the chief Crown Law Adviser, and advises the Governor-General in the exercise of the prerogative of mercy.

The Supreme and Exchequer Court of Canada, presided over by a chief justice and five puisne judges, five of whom constitute a quorum, is the only one exclusively maintained by the Federal Government. This court has an appellate civil and criminal jurisdiction within and throughout the Dominion, it has also original jurisdiction in exchequer matters, in disputes between provinces, and power to decide on the constitutionality of acts of Provincial Parliaments, if called in question.

The province of Ontario has the only Court of Maritime and Admiralty Jurisdiction over all Ontario waters, and this court exercises the same jurisdiction as the Imperial Admiralty Court would have if it were extended to these waters. The Admiralty Courts in Quebec, Nova Scotia, and New Brunswick are Imperial ones.

The judges of all the courts except the Probate Courts of Nova Scotia and New Brunswick are appointed and paid by the Dominion Government, being chosen from among the members of the bar of their respective provinces.

By the Confederation Act, the constitution of the courts (except as to appointment and payment of judges, as above mentioned) is left to the Provincial Parliaments, and therefore differs to some extent in each.

But whatever the machinery by which justice is administered, as regards civil matters it is suited to the provincial requirements, and as regards criminal matters it is uniform throughout the Dominion, criminal enactments being exclusively within the control of the Federal Government.

In civil courts the procedure is neither cumbersome nor expensive.

In criminal matters it is expeditious. In certain cases, by the Speedy Trials Act, a prisoner has the option of being dealt with by the judge in a summary way or of waiting his trial by jury at the next general assizes.

Prisoners sentenced to less than 18 months imprisonment are confined in the common gaol of the district; for over 18 months and less than two years in the central prison of the province.

These gaols and common prisons are under control of the provincial authorities, and as a rule are well built and

managed, and are regularly inspected. An attempt is made in the central prisons to teach a useful trade to the prisoners.

Convicts sentenced to a longer term than two years are confined in the penitentiaries, of which there is one in every province, under control of the Minister of Justice of the Dominion.

An inspector visits them at least twice a year. The wardens in charge send full monthly returns to the inspector. The staff of officers includes warden, deputy warden, matron, chief keeper, surgeon, two chaplains, accountant, storekeeper, and requisite subordinates, as also a staff of trade instructors.

The cost of maintenance averages $200,000, of which nearly half is reimbursed, either, directly, by earnings, or, indirectly, by labour performed for the institution.

The penitentiary system is as similar to the Crofton or Irish system as the exigency of the country will permit, the object being reformatory rather than deterrent.

An elementary instruction is given to all convicts who require it, and a useful trade is taught to most of them.

By good conduct a convict can earn a remission of one sixth of his term. On discharge a suit of clothing, small gratuity, and travelling expenses to their homes are given them.

## DEPARTMENT OF FINANCE.

### *Currency.*

The currency of Canada is decimal. The dollar being the standard.

The coins are:

| | | |
|---|---|---|
| 1 cent | or ·01 | of a dollar. |
| 2 cents | ·02 | „ |
| 5 „ | ·05 | „ |
| 10 „ | ·10 | „ |
| 25 „ | ·25 | „ |
| 50 „ | ·50 | „ |

The coinage is silver, but gold is the legal tender. The American gold coinage, being of equal value, is used.

The banks are under restrictions permitted to issue paper notes of not less denomination than $4.

The usual notes are $4, $5, $10, $100, $500, and $1,000, denominations.

The Dominion Government also issue notes, but of no greater denomination than $2.

The usual notes are of $2, and $1.

The banking restrictions are mainly determined by the Act of 1870, 33 Vict. cap. 11, and are as follows:—

No Bank shall issue notes or commence business until $200,000 of its capital are bonâ fide paid up, and until the Treasury Board has certified to that effect; at least 20% of its subscribed capital shall be paid up each year after commencing business. The amount of notes intended for circulation issued by the bank and outstanding at any time shall never exceed the amount of its unimpaired paid-up capital. The bank shall receive its own notes at par in payment at any of its offices, but shall not be bound to redeem them in specie or Dominion notes at any other place than where they are made payable. One of the places at which notes are payable shall be its chief place of business. The bank shall always hold, if practicable, one half of its cash reserves in Dominion notes and never less than one third. No loans to be made on security of its own stock. Provision is also made for a system of returns to Government which are published officially each year.

The issue of Dominion notes is generally thus controlled: Issue to amount of $5,000,000 authorised on security of debentures of Dominion and specie (debentures on specie to equal in value $5,000,000, of which not more than 80 per cent. to be debentures). Provision is made for increase of issue to $9,000,000, on like security. Increase not to be more than $1,000,000 at a time and not nearer than three months.

The issue of $9,000,000 is not authorised unless the Receiver-General holds specie to the amount of $2,000,000.

As a rule the Receiver-General has held 25% of the total issue in specie.

The increase of banking capital in the Dominion in 10 years has been over 100 per cent., whilst the increase in the amount of deposits or realised ready money of the people during the same period has been over 190 per cent., from $24,209,464 to $68,677,117.

These deposits do not, however, by any means represent the whole saving of the people: considerably over $14,000,000 are deposited in Government Post Office and other savings banks and building societies, whilst the bulk of savings in Canada is generally invested in real estate.

Not only the banks and banking matters, but building societies and all institutions of like nature, are under the control of the Dominion Government.

TABLE showing the BANKING CAPITAL, DISCOUNTS, and DEPOSITS since Confederation in 1867 up to 30th June 1877.

| Years. | Paid up Banking Capital. | Discounts. | Deposits in Chartered Banks. | Deposits in Government Savings Banks. | Deposits in Post Office Savings Bank. |
|---|---|---|---|---|---|
| 1867 | 29,467,773 | 48,158,431 | 28,707,327 | 1,422,047 | — |
| 1868 | 30,289,048 | 50,500,315 | 32,808,103 | 1,481,537 | 204,589 |
| 1869 | 30,981,075 | 53,572,307 | 38,823,333 | 1,595,301 | 856,814 |
| 1870 | 34,339,997 | 67,107,165 | 54,074,760 | 1,823,104 | 1,543,970 |
| 1871 | 37,915,390 | 88,164,316 | 57,787,922 | 2,062,480 | 2,452,965 |
| 1872 | 45,634,719 | 108,402,979 | 64,994,605 | 2,154,234 | 3,033,353 |
| 1873 | 55,102,959 | 120,977,754 | 68,677,117 | 2,958,170 | 3,163,320 |
| 1874 | 60,443,445 | 129,799,008 | 78,790,367 | 4,005,295 | 3,204,965 |
| 1875 | 65,498,433 | 134,082,692 | 75,339,346 | 4,245,091 | 2,926,090 |
| 1876 | 67,199,151 | 125,008,108 | 74,624,041 | 4,305,065 | 2,740,952 |
| 1877 | 73,766,666 | 120,155,535 | 62,029,607 | 4,652,139 | 2,639,937 |

*Fire Insurance Companies licensed in Canada in* 1876.

Thirteen Canadian, 13 British, and three American companies.

| | $ |
|---|---|
| The amount of risks taken during the year in Canada was - - | 401,148,747 |
| The amount at risk at the end of year - - - - - | 404,608,180 |
| Total amount of premiums received | 3,708,006 |
| Net amount of losses incurred during the year - - - | 3,063,917 |
| Total amount of losses paid - | 2,867,295 |

Of the 13 Canadian companies 12 are stock companies, with a total subscribed capital of $16,035,470 and a total paid-up capital of $2,781,088.

Much of the fire insurance is done by provincial and local companies, which are not licensed by the Dominion Government, and do not make returns to the Department of Insurance.

*Life Insurance Companies licensed in Canada in* 1876.

Seven Canadian, 17 British, and 13 American companies.

| | $ |
|---|---|
| The premiums for 1876 were - - | 2,803,310 |
| Amount at risk - - - | 85,009,264 |
| Amount of policies become claims - | 966,156 |
| Claims paid - - - - | 881,498 |

Of the seven Canadian companies six were stock companies, with a total subscribed capital of $5,578,000 and a paid up capital of $591,949.

The number of life policies existing is estimated at 48,504, with an average amount of policy $1,737. This would probably represent about 45,000 lives insured, or 11 per 1,000 of the population. The annual death rate among insured lives is about 8 per 1,000.

There were also licensed five resident insurance companies, two guarantee companies, and one plate glass insurance company.

*Inland Marine Insurance Companies licensed in Canada in* 1876.

Eight Canadian and two American companies.

| | $ |
|---|---|
| The net premiums received for inland marine insurance were - - | 257,197 |
| Gross amount of policies taken - | 20,134,176 |
| Net amount of losses paid - - | 202,073 |

*Ocean Insurance in Canada.*

Seven of the above companies likewise did ocean marine insurance, but the greater part of this business is done by foreign companies. There are one or two local companies, but as no license is required for doing this class of business no returns are made to Government in connexion with it.

*Permanent Building Societies.*

A large business is done by permanent building societies, which are a favourite form of investment. Of these there are, according to a statement of their affairs for 1876, 40, having capitals varying from $50,000 to $2,000,000, with a total capital stock of $11,695,772, and a total subscribed stock of $19,223,799, and paying yearly dividends of from 6 to 12 per cent.

*Revenue, Expenditure, and Public Debt.*

Revenue Consolidated Fund, year ending June 1876 :—

| | $ |
|---|---|
| Customs - - - | 12,823,838 |
| Excise - - - - | 5,563,487 |
| Post office, including ocean postage - - - | 1,102,540 |
| Public works, including railways | 1,479,232 |
| Bill stamps - - - | 227,090 |
| Interest on investments - | 798,906 |
| Casual receipts - - | 119,766 |

| | $ |
|---|---|
| Miscellaneous, including Ordnance lands, premiums, tonnage dues, culler's fees, penitentiaries, &c. - - | 472,628 |
| Total revenue Consolidated fund | $22,587,587 |

*Expenditure.*

| | $ |
|---|---|
| Interest on public debt - - | 6,400,902 |
| Sinking fund - - - | 822,953 |
| Charges of management - | 189,596 |
| Subsidies to provinces - - | 3,690,355 |
| Public works - - - | 1,948,941 |
| Militia and defence - - | 978,530 |
| Civil government - - | 841,995 |
| Legislation - - - | 627,230 |
| Administration of justice - | 544,091 |
| Penitentiaries - - - | 312,015 |
| Immigration and quarantine - | 385,845 |
| Mounted police, N.W. territories | 369,518 |
| Dominion forces, Manitoba - | 81,916 |
| Ocean and river steam service - | 546,549 |
| Light houses and coast services - | 545,848 |
| Fisheries - - - | 108,183 |
| Indian grants - - - | 276,325 |
| Dominion lands - - | 212,841 |
| Boundary survey, United States | 134,105 |
| Pensions - - - | 110,201 |
| Superannuations - - | 101,627 |
| Extraordinary and miscellaneous expenses, organization of N.W. territories, military stores, geological survey, statistics, hospitals, &c., &c. - - | 5,258,826 |
| Total expenditure - | $24,488,372 |

*Public Debt.*

Contracted chiefly on account of Public Works, the interest on which forms the largest branch of expenditure. Upon 1st July 1877, it was as follows:—

FUNDED DEBT.

| *Repayable in London:* | $ |
|---|---|
| Amount bearing 4 per cent. interest - - - | 47,693,333 |

| | $ |
|---|---|
| Amount bearing 5 per cent. interest - - - | 33,829,399 |
| Amount bearing 6 per cent. interest - - - | 30,610,846 |
| *Repayable in Canada:* | |
| Amount bearing 4 per cent. interest - - - | 5,783,511 |
| Amount bearing 5 per cent. interest - - - | 3,302,994 |
| Amount bearing 6 per cent. interest - - - | 6,538,989 |
| Notes (Canada) - - | 11,533,891 |
| „ (Nova Scotia) - - | 43,228 |
| Sundry small amounts - | 18,535 |
| Total funded debt - | $139,354,726 |

*Debt and Interest per Capita of Population.*

(From Year Book for 1878.)

| | $ |
|---|---|
| Net debt per capita - - | 31·11 |
| Gross debt per capita - - | 40·30 |
| Total interest per capita - - | 1·10 |

*Receipts per Capita of Population.*

| | |
|---|---|
| Consolidated revenue, fiscal year 1877, per capita - - - | 5·62 |
| Estimated tax receipts, fiscal year 1878, per capita - - - | 4·79 |
| Estimated expenditure, 1877–8, deducting cash investments, per capita - - - - | 5·78 |
| Estimated gross revenue for same year, per capita - - - | 5·79 |

## DEPARTMENT OF CUSTOMS.

### *Commerce.*

The following tables show which articles Canada buys and the revenue derived therefrom, what she sells, and the extent of her export and import trade with other countries.

## *Imports and Exports of Canada.*

STATEMENT of GOODS entered for CONSUMPTION in the DOMINION of CANADA (exclusive of British Columbia) for fiscal year ending June 30, 1877.

| Articles. | Value January to June 1876. | Value July to December 1876. | Value January to June 30th 1877. | Total for fiscal year. |
|---|---|---|---|---|
| *Goods paying specific duties.* | $ | $ | $ | $ |
| Spirits of all kinds | 687,775 | 412,342 | 398,343 | 810,685 |
| Wines " | 300,659 | 188,329 | 180,102 | 368,431 |
| Tea " | 2,486,703 | 1,562,404 | 1,915,297 | 3,447,701 |
| Coal, oil, and products | 60,137 | 96,126 | 89,384 | 185,510 |
| Cigars, to February 28, 1877 | 196,621 | 97,207 | 45,976 | 143,183 |
| Malt liquors, from February 21, 1877 | — | — | 53,241 | 53,241 |
| Butter, cheese, lard, and tallow, meats, &c. | 951,467 | 1,007,531 | 915,313 | 1,922,844 |
| Total | 4,683,362 | 3,363,939 | 3,597,656 | 6,961,595 |
| *Goods paying specific and ad valorem duties.* | | | | |
| Malt liquors to 20th February 1877 | 70,710 | 64,875 | 8,235 | 73,110 |
| Cigars, from 1st March 1877 | — | — | 51,015 | 51,015 |
| Sugar of all kinds | 2,043,588 | 2,854,299 | 2,354,484 | 5,208,783 |
| Tobacco | 32,176 | 26,778 | 22,431 | 49,209 |
| Total | 2,146,474 | 2,915,952 | 2,436,165 | 5,382,117 |
| *Goods paying 25 per cent. ad valorem.* | | | | |
| Molasses | 375,485 | 480,892 | 291,918 | 772,810 |
| Perfumery, patent medicines, &c. | 72,587 | 89,712 | 58,434 | 138,146 |
| Total | 448,072 | 570,604 | 350,352 | 920,956 |
| *Goods paying 17½ per cent ad valorem.* | | | | |
| Cottons, silks, and woollens | 7,982,173 | 7,906,262 | 8,100,306 | 16,006,568 |
| Dried fruit and nuts | 216,814 | 503,973 | 284,715 | 788,688 |
| Jewellery, watches, plaited ware, &c. | 248,617 | 365,532 | 254,420 | 619,982 |
| Hardware, manufactures of brass, &c. | 1,383,357 | 1,467,073 | 1,653,344 | 3,120,417 |
| Fancy goods, wearing apparel, spices, &c. | 8,510,056 | 9,028,723 | 9,638,218 | 18,666,941 |
| Total | 18,341,117 | 19,271,563 | 19,931,003 | 39,202,566 |
| *Goods paying 10 per cent. ad valorem.* | | | | |
| Animals of all kinds | 147,773 | 176,484 | 252,129 | 428,613 |
| Bran, hay, seeds, straw, trees, vegetables, &c. | 7,967 | 459,119 | 387,958 | 847,077 |
| Machinery, locomotive engines, frames, &c. | 545,698 | 524,643 | 459,357 | 984,000 |
| Total | 1,041,338 | 1,160,246 | 1,099,444 | 2,259,690 |
| *Goods paying 5 per cent. ad valorem.* | | | | |
| Books, pamphlets, &c., printed | 388,449 | 481,041 | 380,395 | 961,436 |
| Iron | 1,240,587 | 1,498,558 | 1,353,321 | 2,871,879 |
| Ship materials | 315,195 | 198,473 | 327,871 | 526,344 |
| Total | 1,762,368 | 2,178,072 | 2,061,587 | 4,239,659 |
| Total dutiable goods | 29,462,741 | 29,490,376 | 29,476,207 | 58,966,583 |
| Total free goods | 12,177,538 | 20,374,686 | 14,722,028 | 35,096,714 |
| Grand total | 41,640,279 | 49,865,062 | 44,198,235 | 94,063,297 |

EXPORTS of CANADA, being Goods produced in Canada only, year ending 30th June 1876.

| Products. | Value. |
|---|---|
| **THE MINE.** | $ |
| Coal | 977,188 |
| Gold | 1,472,471 |
| Copper | 352,035 |
| Silver | 584,378 |
| Other minerals and ores | 345,755 |
| Total | 3,731,827 |
| **THE FISHERIES.** | |
| (See also table showing details of catch) | 5,500,989 |
| **ANIMALS AND PRODUCE.** | |
| Horses | 442,338 |
| Horned cattle | 601,148 |
| Sheep | 507,538 |
| Bacon and hams | 839,105 |
| Beef | 140,108 |
| Butter | 2,540,894 |
| Cheese | 3,751,268 |
| Eggs | 508,425 |
| Furs | 1,779,038 |
| Hides and skins | 529,169 |
| Pork | 242,785 |
| Wool | 933,601 |
| Other produce | 702,237 |
| Total | 13,517,654 |
| **THE FOREST.** | $ |
| Ashes, pot and pearl | 423,894 |
| Firewood | 349,472 |
| Lumber, deals, battens, planks, &c. | 13,514,235 |
| Logs | 33,842 |
| Masts and spars | 65,424 |
| Shingles | 136,067 |
| Railway sleepers | 174,291 |
| Square timber, ash, birch, elm, maple, oak, red and white pine | 5,128,680 |
| Other products | 302,159 |
| Total | 20,128,064 |

| Products. | Value. |
|---|---|
| **Agricultural.** | $ |
| Barley and rye | 7,429,604 |
| Flax | 165,125 |
| Flour | 2,178,389 |
| Fruit—fresh | 170,005 |
| Hay | 321,533 |
| Malt | 144,336 |
| Meal | 287,741 |
| Oats | 1,139,261 |
| Peas | 1,939,589 |
| Seeds | 312,568 |
| Vegetables | 172,297 |
| Wheat | 6,749,298 |
| Tobacco | 7,179 |
| Other produce | 122,730 |
| Total | 21,139,665 |
| **Manufactures.** | |
| Books | 20,529 |
| Biscuits | 30,604 |
| Carriages | 17,947 |
| Extract of hemlock bark | 379,258 |
| Pig iron and hardware | 292,211 |
| Leather, boots and shoes, saddlery, &c. | 1,098,924 |
| Liquors | 69,966 |
| Machinery | 60,308 |
| Sewing machines | 305,749 |
| Ships sold | 2,189,270 |
| Prepared tobacco—snuff and cigars | 77,457 |
| Furniture, sashes, doors, and woodenware | 401,352 |
| Woollens and cottons | 52,229 |
| Other articles | 357,563 |
| Total | 5,353,367 |
| Miscellaneous | 490,283 |
| **Recapitulation of Exports which are Produce of Canada.** | |
| Produce of— | |
| The Mine | 3,731,827 |
| The Fisheries | 5,500,989 |
| Animals | 13,517,654 |
| The Forest | 20,128,064 |
| Agriculture | 21,139,665 |
| Manufacture | 5,353,367 |
| Miscellaneous | 490,283 |
| | 69,861,849 |
| Coin and bullion | 1,240,037 |
| Estimated short returned at inland ports | 2,629,588 |
| Exports of goods *not* produce of Canada | 7,234,961 |
| Total | 80,966,435 |

**COMMERCE of the DOMINION of CANADA, showing the Value of Exports to and Imports from Great Britain and her Colonies and Foreign Countries; distinguishing between Goods the Produce and not the Produce of Canada, Dutiable from Free and Duty collected, Fiscal Year ending 30th June 1876.**

| Countries. | Goods Exported. | | | Goods entered for Consumption (Imports). | | | |
|---|---|---|---|---|---|---|---|
| | Produce of Canada. | Not Canadian Produce. | Total. | Dutiable. | Free. | Total. | Duty. |
| | $ | $ | $ | $ | $ | $ | $ |
| Great Britain | 36,398,584 | 6,303,459 | 42,702,043 | 32,385,482 | 8,100,578 | 40,486,060 | 6,075,759 |
| United States | 28,061,155 | 653,701 | 28,714,856 | 21,334,613 | 22,758,460 | 44,093,073 | 4,117,223 |
| France | 552,723 | 1,212 | 553,935 | 1,798,359 | 42,518 | 1,840,877 | 723,369 |
| Germany | 125,768 | — | 125,768 | 447,457 | 35,130 | 482,587 | 134,282 |
| Holland | 30,816 | — | 30,816 | 263,684 | 3,395 | 267,079 | 459,888 |
| Belgium | 13,825 | — | 13,825 | 319,016 | 42,039 | 361,055 | 61,407 |
| Spain | 9,417 | — | 9,417 | 390,881 | 45,153 | 436,034 | 157,287 |
| Portugal | 125,355 | 2,185 | 127,540 | 53,594 | 18,061 | 71,655 | 29,303 |
| Switzerland | — | — | — | 56,128 | 40 | 56,168 | 10,274 |
| Italy | 142,787 | — | 142,787 | 36,236 | 4,176 | 40,412 | 24,630 |
| China | 23,056 | 19 | 23,075 | 328,415 | 47 | 328,462 | 40,250 |
| Japan | — | — | — | 619,777 | — | 619,777 | 91,792 |
| British Guinea | 229,083 | 1,326 | 230,409 | 111,109 | 3,797 | 114,906 | 92,043 |
| British West Indies | 2,133,849 | 14,642 | 2,148,491 | 798,275 | 70,571 | 868,846 | 335,520 |
| Spanish „ | 1,145,904 | 225 | 1,146,129 | 625,405 | 5,735 | 631,140 | 235,140 |
| French „ | 292,525 | 470 | 292,995 | 17,297 | 29,861 | 47,158 | 6,748 |
| Danish „ | 85,235 | 2,470 | 87,705 | 12,727 | 787 | 13,514 | 5,250 |
| Dutch „ | — | — | — | 52,336 | 3,119 | 55,455 | 21,161 |
| „ East Indies | — | — | — | 118,969 | — | 118,969 | 45,705 |
| Australia | 79,608 | 35 | 79,643 | 50 | — | 50 | 10 |
| Newfoundland | 1,682,843 | 218,048 | 1,900,891 | 17,024 | 757,562 | 774,586 | 4,890 |
| St. Pierre et Miquelon | 153,641 | 25,024 | 178,665 | 7,032 | 12,802 | 19,834 | 1,955 |
| Sandwich Islands | 18,169 | 102 | 18,271 | 53,972 | 1,193 | 55,165 | 20,449 |
| South America | 687,093 | 1,116 | 688,209 | 287,553 | — | 287,553 | 120,844 |
| Other countries | 500,001 | 10,927 | 510,928 | 102,856 | 334,737 | 437,593 | 17,931 |
| Total | 72,491,437 | 7,234,961 | 79,726,398 | 60,238,297 | 32,269,761 | 92,508,058 | 12,833,114 |
| Coin and bullion | — | — | 1,240,037 | — | 2,220,111 | 2,220,111 | — |
| Copyright works | — | — | — | 5,049 | — | 5,049 | — |
| Grand total | 72,491,437 | 7,234,961 | 80,966,435 | 60,243,346 | 34,489,872 | 94,733,218 | 12,833,114 |

## DEPARTMENT OF POSTMASTER-GENERAL.

The following shows the condition and progress of the Dominion postal system:—

| | 1872-73. | 1873-74. | 1874-75. | 1875-76. |
|---|---|---|---|---|
| No. of post offices | 4,518 | 4,706 | 4,892 | 5,015 |
| Miles travelled by mail | 13,266,598 | 13,929,180 | 14,384,678 | 14,878,663 |
| No. of letters by post in year | 34,579,000 | 39,358,500 | 42,000,000 | 41,800,000 |
| *No. of postal cards | — | — | — | 4,644,000 |
| No. of newspapers by post in the year | 25,480,000 | 29,000,000 | 31,300,000 | 38,549,000 |
| No. of registered letters posted in the year | 1,337,000 | 1,562,900 | 1,750,000 | 1,774,000 |
| | $ | $ | $ | $ |
| Amount of postal revenue | 1,406,984 | 1,476,207 | 1,536,509 | 1,434,886 |
| Amount of expenditures | 1,553,714 | 1,695,480 | 1,873,241 | 1,959,758 |
| Amount money order issues | 6,177,905 | 6,815,329 | 6,721,439 | 6,866,618 |
| Amount post office savings' banks, Ontario and Quebec | 3,207,051 | 3,204,965 | 2,926,090 | 2,740,952 |

* Up to 1874-75 letters included post cards, for 1875-76 letters and post cards are stated separately.

The items which deserve attention, as suggestive of progress in Canada, are those which show the great increase in number of letters carried annually through the mails, the number of registered letters, money orders issued, and the sums deposited in post office savings banks.

The reduction in deposits shows the effects of the depression which commenced in 1875.

The money order system is widely used, and although it pays expenses in the aggregate, it is supported at a loss by the Government in many isolated places where banking facilities are wanting.

Postal cards are sent all over Canada and the United States for one cent. The postal rate of three cents. carries letters over the Dominion and the United States, in some cases a distance of 5,000 miles.

Of the 278 post office savings banks, 232 are in Ontario, 45 in Quebec, and 1 in Manitoba.

## DEPARTMENT OF PUBLIC WORKS.

### CANALS.

The canals of Canada are more remarkable for their breadth than for their length. The total length of canal and river improvement embraces about 250 miles upon the St. Lawrence, Ottawa, Rideau, and Richelieu rivers. The existing St. Lawrence canals have a bottom width of 80 to 100 feet, surface width 120 to 150 feet with 10 feet depth of water, the locks being 200 feet long by 45 to 50 feet wide in chamber. The locks of the Welland Canal are 150 feet in length by 26 feet in width of chamber, depth of water 10 feet. Both these works are now in course of enlargement upon a uniform scale of locks 270 feet long by 45 feet wide, in the chamber, with a depth of 14 feet water.

The expenditure for canals and river works on the above rivers previous to confederation (July 1, 1867), was $22,390,690 of which $4,064,764 was the cost of the Rideau Canal, an Imperial undertaking. The cost of the following canals, as charged against the Dominion of Canada on account of the Provinces at Confederation, was as follows :—

| | $ |
|---|---|
| Desjardins - - - | 120,263·73 |
| St. Lawrence - - - | 7,431,208·04 |
| Welland - - - | 7,416,019·83 |
| Chambly - - - | 433,807·83 |
| Burlington Bay - - | 308,328·32 |
| | $15,709,627·95 |

In the ten years since Confederation, the expenditure has been $10,595,292·92 up to 30th June 1877, not including the Ottawa and other River works, which are distinct from its canal works, being for slides, booms, &c. to facilitate the descent of timber, but without locks or any provision for ascending navigation.

This expenditure has been distributed as follows:—

| | $ |
|---|---|
| St. Lawrence Canals - - | 2,544,779·82 |
| Welland „ - - | 5,879,169·57 |
| Ottawa River „ - - | 1,844,291·70 |
| St. Peters „ - - | 212,809·24 |
| Rideau, Chambly, and Baie Verte (Survey) - - - | 114,242·59 |
| | $10,595,292·92 |

The estimated cost of the enlargement of the St. Lawrence navigation with 14 feet water from Lake Erie to Montreal, is $30,200,000, $12,860,000 of which was under contract last year. The enlargement of the canals on the line of the St. Lawrence is the second which has taken place since their construction. In 1846 the Welland and Lachine canals were enlarged and the direct St. Lawrence route opened between Montreal and Kingston, which at once took the trade from the inland route of the military canals viâ the Ottawa and Rideau rivers.

The Canadian canals were not planned for Canadian trade exclusively, the object of Canada being to furnish the route for, when not the article of exchange itself, between Europe and the Western United States. The St. Lawrence navigation, leading to Montreal, and its great competitor the Erie canal, leading to New York, both start from the foot of Lake Erie. From this point to Chicago there is a continuous voyage in slack water through Lakes Erie, Huron, and Michigan, of 900 miles in length.

Although the Welland Canal is more than double the capacity of the Erie canal, its locks, designed for the class of vessels in use over 30 years ago, soon proved too small for the increased dimensions called for by the rapidly growing trade of the west over this 900 miles of lake voyage. In 1874 there were 122 "propellers," aggregating 114,912 tons register, upon the Upper lakes—none of which could descend into Lake Ontario by reason of the deficient size of the locks of the Welland Canal.

It is an axiom that a vessel to be profitable should have at least one ton of cargo capacity per mile of voyage. The Welland Canal vessels had not over 600 tons for the 900 miles above it. They could carry at most 18,000 bushels wheat, while there were others plying between Buffalo and Chicago which could carry 50,000 and more, and the larger vessel could take a rate per bushel 25% lower than the smaller one. There are propellers above the Welland Canal, 250 feet long, 36 feet wide with 16 feet depth of hold, which can carry 1,500 tons dead weight in 14 feet water at a speed of 10 miles per hour.

Notwithstanding this disadvantage, on the whole route from Chicago to tide water the difference is conceded by United States authorities, as will be seen further on, to be in favour of Montreal, both in cost and time, but this difference, though considerable, has sufficed only to a limited extent to overcome the advantage in favour of New York as to ocean freights.

Another reason which has made necessary the enlargement of the Canadian canals is railway competition. Some railways, built with borrowed money and managed by people who do not own them, have swollen their gross receipts for stock purposes by wearing out their rails and rolling stock in carrying freights at rates below cost. For want of better employment, and hungering for freights, they carried goods backward and forward without profit, as brokers in dull times exchange stocks "to keep them up," to the great derangement of legitimate traffic. Railways must run to a certain (and perhaps a losing) extent when vessels can "tie up"; but these last creep out again as soon as the financial storm is over, and cannot, upon such a navigation as the St. Lawrence, be run off the course by the railway. Iron has been taken from Quebec to Chicago by water, at one third the cost of haulage by rail.

Canada has faith in her water route, and confidently expects that when she has reduced the cost of inland

carriage to a minimum, European capital will avail itself of the shortest and cheapest route from the Atlantic to the interior of the North American continent. The distance from Chicago to Liverpool viâ Montreal is at least 300 miles shorter than viâ New York. The difference in time in favour of the lake and river route against the Erie Canal is seven to eight days.

It must be remembered that the surplus producing portion of the United States is beyond Lake Erie, which is the western terminus of the Canadian Canal system.

The Hon. Wm. Thurston, Secretary Buffalo Board of Trade, one of the Commissioners appointed to report on the New York Canals, writes:

"When her enlarged canals are completed, Canada will "for nearly eight months of the year possess the most "perfect system of inland navigation in the world.

"The work on the Welland Canal progresses steadily "and the canal will soon be ready for navigation. It "will be the finest work of internal improvement on the "American continent.

"The distance from Chicago to Montreal, viâ the "Welland and St. Lawrence canals, is 1,261 miles; the "distance from Chicago to New York, viâ Buffalo and the "Erie Canal, is 1,419 miles, or 150 miles in favour of the "former route. The route first named has 70 miles of artifi- "cial navigation with 56 locks and a total lockage of 564½ "feet; the second 350 miles, 72 locks, and 654 feet lockage. "Thus there are 16 more locks and 89½ more feet of "lockage on the New York than the Montreal route, with "the advantage of a stronger current also in favour of "Montreal.

"Time is an important point to be considered in com- "paring the routes. A cargo of grain is brought to "Buffalo from Chicago by propeller in about five days; "allow one day for elevating and transferring to canal "boats at Buffalo; then 11 days trip (by mule power) on "Erie Canal to tide water, and two days for towing from "thence on the Hudson River to New York, altogether "19 days. From Chicago to Port Colborne the usual "length of a trip by a propeller is five days; thence "by Welland Canal to Port Dalhousie, Lake Ontario, "one day; thence to Kingston one and a quarter "days; one day may be consumed there in transferring "cargo; thence from Kingston to Montreal by barges the "time is three days; altogether eleven and a quarter days; "thus showing a gain of seven and three-quarter days in

" favour of the Montreal route. The time on the Erie " Canal is shortened about three days when steam is " used.

" The average rate of freight per bushel of wheat from " Chicago to Kingston during the season of 1877 was " seven and a quarter cents by rail or steam, and from " Kingston in barges (carrying 16,000 to 20,000 bushels) " to Montreal uniformly three and a quarter cents; altogether about ten and a half cents, including half a cent " as toll on canals, and half a cent for transhipment at " Kingston. The barge generally is taken alongside the " ocean ship and three-quarters of a cent pay all remaining " expenses. Ocean freights vary according to supply and " demand for vessels; and the rates do not to any noteworthy extent, differ from those prevailing in New " York. The storage capacity of Montreal is 2,000,000 " bushels of grain, and 200,000 barrels of flour. About " 90 per cent. of the grain shipped is purchased on " English orders for cash at western ports, and 10 per " cent. on owners account consigned to Great Britain and " Ireland.

* * * *

" Thus keen competition is certain when the Canadian " canals are completed. Canada and England will then " strive for the internal carrying trade by the lakes from " the Western States, and the persistency, energy, and " financial ability of England are so well known as to " leave scarcely a doubt of the ultimate success of the " movement, unless it is promptly met by corresponding " efforts on our part.

" In the New York Produce Exchange Report for 1874–" 75 it is stated that 'Practical experience has demon-" 'strated that large vessels or ships can carry property " 'more cheaply than small ones, the rates of cheapness " 'being in about the proportion of the increased tonnage " 'measurement. An increase of 150 per cent. in the " 'capacity of vessels navigating the lakes and the " 'Canadian canals cannot but largely augment the ability " 'of the St. Lawrence route to carry property at very " 'largely diminished rates of transportation. The trans-" 'portation rates on the Erie Canal can only be further " 'reduced to the extent of about 70 cents per ton by the " 'abrogation of tolls, except by enlargement. With the " 'non-enlarged Erie Canal and the enlarged Canadian " 'canals the power of competition will be unequal.'"

In the same Report for 1875–76, p. 224, it is stated:—

"The railways may be able with improved facilities to "carry cheaper than they now do, but the railways and "the Erie Canal without such improvements will soon "have a competitor for carrying all products destined for "export to Europe with which they will not be able to "compete successfully.

"The grain trade of Montreal has been diminished only "between five and six per cent. by the cheap rail and canal "rates that prevailed during 1876, and this with the "Welland Canal passing vessels of only 400 tons measure- "ment carrying about 600 tons cargo. By the year 1880 "both the Welland Canal and the St. Lawrence Canal "enlargement is expected to be completed, and when it "shall have been completed, these canals, only 69½ miles "in length, less than the distance from Buffalo to Rochester, "will pass vessels of 1,200 tons measurement and of about "1,500 tons burthen. These improvements will practically "extend ocean navigation to Chicago, Milwaukie, and "Duluth, and to all other western lake ports.

"If the export grain trade shall once be turned down the "St. Lawrence it will be more difficult to regain it than to "regain the export trade already diverted to Baltimore and "Philadelphia. These large seaboard cities will always "have a large grain trade, but it will be limited chiefly to "their domestic requirements for consumption.

"If steamers and sailing vessels of 800 to 1,000 tons "measurement can now transport grain from Chicago to "Buffalo, a distance of 1,000 miles, for three cents per "bushel, it requires no prophetic vision to see that, with "the enlarged Canadian canals, and vessels of 1,500 tons "burthen, the voyage can be extended 400 miles further "to Montreal for three cents additional per bushel, in- "cluding the merely nominal canal tolls; and this is only "one cent more than the present canal rate of five cents "from Buffalo to New York."

## Western Trade.

The efforts of Canada to retain and divert trade through the natural channel of the St. Lawrence are explained by the magnitude of that trade.

Although only about one-fifth of the land is under cultivation, the annual grain crop of the North-western States

exceeds 1,000,000,000 of bushels. In 30 years from their first commencement the export reached 140,000,000 of bushels.

The receipts of grain and flour at the eight principal western ports on the upper lakes in 1876, viz., Chicago, Milwaukee, Detroit, Toledo, Cleveland, St. Louis, Peoria, and Duluth, were 200,000,000 of bushels.

The lake fleet, comprising all classes, numbers about 3,000 vessels, about one half of which are barges ranging from 200 to 1,000 tons burthen each.

The official estimate of the French Government makes the annual average aggregate cereal products of Europe 4,994,000,000 bushels, of which the Russian Empire grows 1,606,000,000 bushels, or nearly one-third of the whole, Germany 742,500,000 bushels, France 687,500,000 bushels, and the Austrian Empire 550,000,000 bushels. The production of the United States of North America in this estimate is placed at 1,537,250,000. The latter with a population of about 45,000,000 produces $34\frac{16}{100}$ bushels to each inhabitant, while Europe with a population of 297 millions produces only about $16\frac{1}{2}$ bushels to each person.

In 1876 the imports of maize into the United Kingdom of Great Britain aggregated 79,916,452 bushels of 56 pounds each, of which about 60,000,000 bushels, or 75 per cent. of the whole, were from the United States. In the same year the United States and Canada sent to Great Britain $48\frac{9}{10}$ per cent. of the total imports of wheat against $19\frac{7}{10}$ per cent. from Russia, and $31\frac{4}{10}$ per cent. from all other countries.

The corn or maize crop of the United States in 1875 was 1,321,069,000 bushels. The Western and North-western States have a large surplus cereal product, while the middle and Eastern have a large deficiency, which the former (aided by Canada) supplies. The State of New York alone requires annually about 45,000,000 bushels more grain than is grown within her borders, and the New England States, with a population largely engaged in manufactures, also draw heavily upon the granaries of the West for their deficiency in cereal production.

Recently published statistics show an enormous increase of late years in agricultural products in the United States. Here are the figures :—

| | 1870. | 1877. |
|---|---|---|
| Wheat, bushels | 235,884,700 | 360,000,000 |
| Corn, bushels | 1,094,255,000 | 1,340,000,000 |
| Oats, bushels | 247,277,400 | 405,200,000 |
| Barley, bushels | 26,245,400 | 35,000,000 |
| Rye, bushels | 15,473,600 | 22,100,000 |
| Tobacco, pounds | 250,628,000 | 480,000,000 |
| Hay, tons | 23,525,000 | 31,500,000 |
| Acres, cultivated | 90,771,608 | 121,350,000 |
| Horses | 7,145,370 | 10,329,700 |
| Mules | 1,125,415 | 1,637,500 |
| Milch cows | 8,935,332 | 11,300,100 |
| Cattle | 14,885,276 | 19,223,300 |
| Sheep | 28,477,651 | 35,740,500 |
| Swine | 25,134,569 | 32,262,500 |

More detailed information from American sources as to inland water transportation, railway competition, and the rival Canadian and American routes will be found in the Appendix.

## Improvement of Navigation between Montreal and Quebec.

This work, which is fully described in the Appendix, as well as illustrated upon the Section, forms an important feature in connexion with the canal system above Montreal, and since 1873 has been under the control of the Dominion Government, by virtue of an appropriation of $1,500,000 by the Parliament of Canada.

The effect of this important work has been to increase the size of vessels coming to the port of Montreal from 400 to 4,000 tons and from 11 to 22 feet draught of water. This work has enforced in a great measure the reconstruction of the harbour of Montreal, which is remarkable as being a fresh water seaport, frequented by the largest craft, nearly 1,000 miles inland from the Atlantic, 250 miles above salt water, and nearly 100 miles above tide.

Here in the bottom of Lake St. Peter is a submerged canal entirely excavated by steam, longer than the longest of any of the St. Lawrence canals, of as great a depth, and three times the width. The great work on the Clyde only surpasses it in the magnitude of the expenditure.

Canada, in the improvement of her inland navigation and in her railways, has evinced at least as much enterprise in

proportion to her resources in men and money, as any other country of the world, and not the least of these is the great work in the River St. Lawrence below Montreal, for which she is indebted chiefly to the energy and perseverance of the late Hon. John Young, of that city.

From the valuable reports of W. J. Patterson, Esq., Secretary to the Board of Trade, Montreal, we learn that:—

"From 1864 to 1876 the total seagoing tonnage of "Montreal increased 141-62 per cent. and the steamship "tonnage 344·94 per cent. The Allan line, commencing in "1856 with four steamers, 6,536 tons, now numbers 20 "first-class steamships of 58,284 tons." There is also the Dominion line of six large steamships, the Temperley line with the same number, the Canadian Shipping Company with three fine steamships, and the same number of iron clippers, owned and registered in Canada, and sailing under the Dominion flag. The above are regular traders to the St. Lawrence, and another line is proposed, the trade in live cattle being no doubt the chief incentive. Besides the regular lines, 35 transient steamships from Liverpool, London, and Glasgow entered the St. Lawrence in 1876. About a dozen steamships are engaged in trading to the lower ports in the gulf and Atlantic coast.

The increase in the size of vessels arriving from sea, owing to the deepening of the channel below Montreal, is shown by the fact that the tonnage of 557 seagoing vessels which arrived in 1869 was 259·863, while that of 513 vessels arriving in 1877 was 376·857;—that is, although the number of vessels was 44 less, the number of tons was 116,994 more.

## Railways.

Of the 59 states and kingdoms of the world which have railway systems, Canada ranks *eighth* in absolute mileage, and *fifth* in the number of miles to each inhabitant.

Her progress in railway construction has been as follows:—

| | | |
|---|---|---|
| 1850 | - - | 38 miles. |
| 1855 | - - | 1,218 „ |
| 1860 | - - | 2,173 „ |
| 1865 | - - | 2,231 „ |
| 1870 | - - | 2,679 „ |
| 1875 | - - | 4,899 „ |
| 1878 | - - | 5,700 „ |

The mileage in operation in the leading countries is as follows:—

| Country. | Mileage. |
|---|---|
| 1. United States | 77,440 |
| 2. Germany | 17,133 |
| 3. Great Britain and Ireland | 16,872 |
| 4. Russia | 13,702 |
| 5. France | 12,722 |
| 6. British India | 6,938 |
| 7. Austria | 6,931 |
| 8. Canada | 5,700 |
| 9. Italy | 4,935 |
| 10. Hungary | 4,023 |
| 11. Spain | 3,726 |
| 12. Sweden | 2,326 |
| 13. Belgium | 2,105 |
| 14. Peru | 2,030 |

The miles of railway in operation for each inhabitant are as follows—as taken from H. V. Poor's "Railway Manual."

| Countries. | No. of Inhabitants to One Railroad Mile. |
|---|---|
| Queensland | 397 |
| Tahiti | 476 |
| Western Australia | 524 |
| United States of America | 576 |
| Canada | 690 |
| South Australia | 739 |
| New Zealand | 872 |
| New South Wales | 1,170 |
| Luxembourg | 1,184 |
| Victoria | 1,238 |
| Sweden | 1,540 |
| Argentine Republic | 1,705 |
| Great Britain and Ireland | 1,859 |
| British Guiana | 2,245 |
| Denmark | 2,254 |
| Switzerland | 2,283 |
| Belgium | 2,286 |
| Germany | 2,346 |
| Peru | 2,422 |
| Hungary | 2,592 |
| Paraguay | 2,597 |
| France | 2,860 |

| Countries. | No. of Inhabitants to One Railroad Mile. |
|---|---|
| Tasmania | 2,918 |
| Cuba | 2,985 |
| Chili | 3,256 |
| Holland | 3,427 |
| Spain | 4,056 |
| Roumania | 4,064 |
| Austria | 4,302 |
| Portugal | 4,444 |
| Norway | 4,455 |
| Mauritius | 4,545 |
| Panama | 4,612 |
| Russia | 5,265 |
| Turkey in Europe | 12,830 |
| „ in Asia | 49,054 |
| Greece | 208,743 |
| Japan | 807,573 |
| China | 33,871,960 |

Under the mistaken idea that an exceptional gauge would confine Canadian trade to Canadian ports, the gauge of 5 ft. 6 ins. was adopted some 25 years ago. The greater part of the lines so built have recently been reduced to 4 ft. 8 in., which is the standard gauge of the continent.

Again, with the belief that narrow gauge railways were obtainable where the wider ones were beyond their means, several hundred miles have been constructed on the gauge of 3 ft. 6 in. That portion of the narrow gauge which is insulated may remain for many years, but that which is in contact with the standard gauge will be widened as soon as the change can be afforded. Experience has proved that freight traffic in Canada requires a wider gauge than 3 ft. 6 ins.

The respective lengths of each gauge is as follows:—

| | | |
|---|---|---|
| 5 ft. 6 ins. | gauge | 539¾ miles. |
| 4 ft. 8½ ins. | „ | 4,362 „ |
| 3 ft. 6 ins. | „ | 672 „ |
| | | 5,574¼ |

## *Capital.*

The total capital of railways in operation 30 June 1877 was as follows:—

| | $ | c. | $ | c. |
|---|---|---|---|---|
| Ordinary share capital paid up | | | 113,702,126 | 82 |
| Preference | | | 68,876,867 | 31 |
| Bonded debt | | | 79,676,382 | 44 |
| Amount of loans and bonuses from— | | | | |
| Dominion Government | 55,320,802 | 25 | | |
| Ontario „ | 1,733,817 | 02 | | |
| Quebec „ | 441,681 | 00 | | |
| New Brunswick „ | 2,163,000 | 00 | | |
| Municipalities | 5,689,299 | 31 | | |
| | 65,348,599 | 61 | 64,073,599 | 61 |
| Less included in paid up securities as above | 1,[illegible]00 | 00 | | |
| Total | | | 326,328,976 | 18 |

This large sum does not represent the cash expended, but is the par value of securities (many of which were sold at a discount), and of arrears of interest funded in the form of preference shares or bonds. It represents an average cost of $60,000 per mile for the whole system, and includes the reconstruction involved by the change of gauge and the substitution of steel for iron rails. Of the total mileage, about one half is laid with steel rails.

The amount expended by the Dominion Government, including the cost of the Intercolonial, Prince Edward Island, and Pacific railways, loans to Grand Trunk and other lines, and also the loans and bonuses of the local governments to the railways throughout the country, is as follows:—

| | $ | c. |
|---|---|---|
| Dominion Government | 63,296,381 | 08 |
| Ontario „ | 3,250,769 | 24 |
| Quebec „ | 9,495,506 | 00 |
| New Brunswick „ | 2,609,000 | 00 |
| Nova Scotia „ | 1,885,727 | 00 |
| | 80,537,383 | 32 |

The municipalities of the different provinces have voted aid to railways as follows:—

| | $ | c. | $ | c. |
|---|---|---|---|---|
| In Ontario | 6,968,853 | 78 | | |
| In Quebec | 3,723,000 | 00 | | |
| In New Brunswick | 296,500 | 00 | | |
| In Nova Scotia | 275,000 | 00 | | |
| | | | 11,262,353 | 78 |
| | | | 91,799,737 | 10 |

Individual investments in the stock and bonds held in Canada will probably swell the total contributions paid and voted to railways to not less than one hundred millions of dollars.

A detailed statement of Canadian railways will be found in Appendices F. G. H.

### *Canadian Pacific Railway.*

Although it was early foreseen that the extension of the Canadian jurisdiction over the vast territories occupied by the Hudson's Bay Company would enforce the construction of a trans-continental railway, it was not until 1871, when British Columbia became a member of the Canadian Confederacy, that the great undertaking was determined upon. In 1872 the Parliament of Canada decided to subsidise a private company for this purpose with a money grant of $30,000,000 and a land grant of 50,000,000 of acres. The company having failed to carry out the conditions of its charter, and the Federal Government being pledged by the conditions of union with British Columbia to construct the road, the Parliament of Canada, in 1874, determined to proceed with it as a public work.

The survey was commenced in 1871 by the Government, and has been continued to the present time, so that the failure of the company has not had any serious effect upon the commencement of the work, upon which about $8,000,000 have been expended, $3,000,000 of which represents the cost of surveys. This survey has involved the exploration of 46,000 miles (of which 11,500 have been measured), the expenditure of seven years of time, $3,000,000 of money, and the loss of some 34 lives. The estimated cost of the entire work ranges from 100 to 120 millions of dollars.

Between Lake Superior and the Rocky Mountains the line will form an outlet to a territory estimated to contain 160 millions of acres of land available for farming purposes, one half of which is arable; a great part of this 80,000,000 acres is not exceeded in fertility by any part of the world.

The value of this vast Dominion is greatly enhanced by the consideration that nearly all the national agricultural lands of the United States have been absorbed In an article in the "North American Review" for July 1877, entitled "How shall the Nation regain Prosperity?" the Hon. David A. Wells writes as follows:—

"The quantity of fertile public lands suitable for farm "purposes which can now be obtained by prescription or a

" nominal price is comparatively limited, if not nearly " exhausted.

" According to Major Powell (in a communication recently " made to the National Academy), 'All the good public " ' lands suitable for settlement are sold. There is not left " ' unsold in the whole United States, of land which a poor " ' man could turn into a farm, enough to make one " ' average county in Wisconsin. The exception to this " ' statement, if it is open to any, may perhaps be found in " ' Texas or the Indian territory; elsewhere it is true.'

" And in respect to the arid region of the plains, which, " it is alleged, is eminently fitted for grazing, Major Powell " further says:—'In this whole region, land, as mere land, " ' is of no value; what is really valuable is the water " ' privilege. Rich men and stock companies have appro- " ' priated all the streams, and they charge for the use of " ' the water. Government sections of 160 acres that do " ' not contain water are practically, or at all events com- " ' paratively, worthless.'"

The line of the Canadian Pacific Railway crosses the Rocky Mountains through a wide, meadow-like expanse, the Yellow Head Pass, 3,746 feet above sea level, and lying over 5,000 below the lofty peaks on both sides of it.

The distance from Lake Superior to the Pacific Ocean will be about 2,000 miles. As far as located (nearly 1,500 miles), the line is under contract for clearing and telegraph construction; about 300 miles are under contract for grading and bridging, and steel rails have been provided for 400 miles east of the Red River. The policy of the Government is to connect the navigable water system of Winnipeg Lake, the Saskatchewan and Red Rivers, with those of Lake Superior, to form an outlet for the exports of the prairie region during the season of navigation, and, by the Pembina branch, with the United States railway system in Manitoba, for winter traffic.

Within the next two or three years the portage of 400 miles between Lakes Winnipeg and Superior will be completed, shortening the route between Montreal and the Great Canadian Prairies at least 500 miles. The Pacific section will be commenced from tide water eastward as soon as the route is determined upon. The time fixed for completion through to the Pacific Ocean is 1890, but considerations of Imperial policy may yet anticipate this date, as the rate of progress is only limited by financial considerations.

Fifty miles, from Lake Superior westward, have been

completed, which will be available chiefly for purposes of construction, until the prairie country is reached.

The engineering features of the line are shown on the section.

## TELEGRAPHS.

The older Provinces of Canada are served by two Canadian companies, the larger of which, the Montreal company, was the first to introduce into America the system of an uniform rate irrespective of distance.

The following are the leading statistics of these two Companies:—

*Montreal Telegraph Company.—Organized in* 1847.

| —— | In 1847. | In 1877. |
|---|---|---|
| Capital paid | $60,000 | $2,000,000 |
| Miles of poles | 540 | 12,044 |
| „ wires | 540 | 20,479 |
| Number of offices | 9 | 1,507 |
| „ employés | 35 | 2,255 |
| „ messages | 33,000 | 1,762,720 |

*Dominion Telegraph Company of Canada.*

| —— | 31 Dec. 1876. | 31 Dec. 1877. | Increase 1877. |
|---|---|---|---|
| Miles of Line | 7,146 | 7,824 | 678 |
| Stations | 366 | 424 | 58 |
| Employés | 688 | 730 | 62 |
| Messages sent during the year. | 540,232 | 641,507 | 101,275 |

*Canadian Pacific Railway Telegraph.*

The Dominion Government also is constructing a telegraph across the Continent on the line and in advance of the Canadian Pacific Railway. There are 1,747 miles under contract, upon which the expenditure to June 1877 was $117,137 41.

## DEPARTMENT OF THE INTERIOR.

### *Dominion Lands.*

The only lands held by the Federal Government in the older provinces are Ordnance and Admiralty reserves.

In Manitoba and the north-west territories, however, it

holds a vast extent of rich agricultural land acquired by the removal of the claims of the Hudson's Bay Company and by treaty with the Indians.

These lands may be purchased at the rate of $1 30c. per acre, but no purchaser can buy more than 640 acres.

Tracts of land may be set apart by the Government for town or village lots to be sold by private or auction sale at market prices.

Lands may also be set apart for such purposes as markets, gaols, court-houses, places for public worship, &c.

Free grants are also given of 160 acres to any head of a family, male or female, or to any person over 18 years of age, on condition of three years settlement from time of entry; and in case such grants consist entirely of prairie land, a wood lot is included of not less than 10 and not more than 20 acres, which, however, must be paid for at the rate of $1 30c. per acre.

These provisions do not apply to lands set apart as timber lands, or to mineral lands.

Unoccupied lands bordering on occupied lands may also be rented to the occupiers for purposes of grazing and cutting hay, but such leases must not prevent sale and settlement of such lands as they are wanted.

By a recent Act it is provided that in case any person or company are willing to undertake to colonise any public lands, free of expense to the Government, in the proportion of one family to every alternate block of 160 acres, that is, not less than 64 families in any one township of 23,040 acres, the remaining portion of the township may be sold to them at reduced price.

If also such person or company have stipulated with any of the families before starting to advance money to them for passage or purchase of stock, &c., this Act permits such a debt to be made a charge against the quarter section taken up by that family (subject to certain restrictions intended to secure the emigrant against extortion), and the patent will not be issued until this claim has been satisfied.

Free grants are also made to parties who agree to plant and maintain forest trees thereon.

*Indians.*

The immediate care of the Indians is under the Superintendant-General of Indian Affairs, who is also Minister of the Interior.

Canada has always pursued the policy of respecting the territorial rights of the Indians, a policy originated by the French and followed by the Hudson's Bay Company.

Their interests are scrupulously guarded, and they are treated with uniform kindness and good faith.

Treaties are made with them by which, in consideration of certain reserves of land being set apart for their use, and of certain annual payments, they surrender their lands to the Government.

The lands forming the Indian reserves are administered for their benefit by the Indian officer, and the revenues derived therefrom, in addition to the money grants, are paid to them annually in the form of a per cap. pension.

Nearly the whole of the Canadian Indians have thus come under treaty.

The Deputy Minister of Justice acts as Solicitor of Indian Affairs.

The following tables, from the "Year Book of Canada for 1877," show their number and distribution.

TABLE of the ABORIGINAL POPULATION of CANADA, with the Superficies in Square Miles of the Hunting and Fishing Grounds occupied by the different Tribes, the whole referring to the Year 1871.

All the aboriginal families of British America are divided into four races. These four races are :—1. That of the Esquimaux, or Innok (plural Innoit). 2. That called the Dénè-Dindjiè. 3. That of the Algonquins, or the Algic race. 4. That of the Huron-Iroquois.

In the following Table letters are placed after the names of the tribes, to indicate to which of the four great races each tribe belongs; AL. for the Algonquin race; H.-I. for the Huron-Iroquois race; D.D. for the Dénè-Dindjiè race; and IN. for the Esquimaux race. (*Innok—Innoit.*)

| Names of Tribes. | Description of Places inhabited. | Population. | Territorial Superficies in English Sq. Miles. |
|---|---|---|---|
| 1.—The Esquimaux, IN. - | Littoral of the North Sea, from Labrador to Alaska, the northern shores and islands of Hudson's Bay, with the islands of the Arctic Ocean. | 4,000 | 600,000 |
| 2.—The Naskapis, AL. - | Interior of Labrador, South-East Watersheds of Labrador, Rupert's Land to the East of Hudson's Bay, and the Mistassin Country. | 2,500 | 330,000 |
| 3.—The Montagnais, AL. - | North shore of the Gulf and mouth of the St. Lawrence, valley of the Saguenay River. (*These Indians do not fish.*) | 1,745 | 115,000 |
| 4.—The Micmacs, A.L. (Villagiers.) - | Nova Scotia, Prince Edward Island, Eastern part of New Brunswick; counties of Bonaventure, Gaspé, and Rimouski, in Quebec. | 3,459 | 56,000 |
| 5.—The Maléchites, AL. (Villagiers.) - | Valley of St. John River, in New Brunswick; counties of Temiscouata, Kamouraska, and L'Islet, in Quebec. | 574 | 24,000 |
| 6.—The Hurons, H.-I. (Villagiers.) - | Lorette, environs of Quebec, and the County of Essex, in Ontario. | 356 | 10,000 |
| 7.—The Wamontachingues, Têtes de Boules, &c., AL. | St. Maurice Territory - - - | 247 | 29,000 |
| 8.—The Abénakis, AL. (Villagiers.) - | South of the District of Three Rivers, Eastern Townships and vicinity. | 326 | 13,000 |
| 9.—The Iroquois, H.-I. - | Kauknawaga, Lake of Two Mountains, and St. Regis, in the Province of Quebec; several places in Ontario, and especially on the *Grand River.* | 6,374 | 13,000 |

| Names of Tribes. | Description of Places inhabited. | Population. | Territorial Superficies in English Sq. Miles. |
|---|---|---|---|
| 10.—The Ottawas, various tribes, AL. | Different places in Quebec, Valley of the Ottawa, and part of the slopes of James' Bay. | 3,540 | 103,000 |
| 11.—Algonquins, Potowatamis, northern tribes, &c., AL. (Partly villagiers.) | Large part of Ontario, Manitoulin and other islands; interior north of Lake Huron to James' Bay, and south of that bay. | 8,637 | 124,000 |
| 12.—The Sauteux, Maskégons, and other tribes, AL. | North of Lake Superior, Portages, from the Lake to beyond Manitoba, south-eastern part of the North-west Territory. | 9,000 | 336,000 |
| 13.—The Prairie Crees, AL. | The regions of Lake Qu'Appelle, and of the Middle Kissiskatch'wan. | 5,500 | 247,000 |
| 13.—The Wood Crees, AL. | To the north, N.E., and N.W. of the preceding. | 3,000 | |
| 14.—The Sioux, Frontier Wanderers, H.-I. | Neighbourhood of Manitoba | 1,400 | 17,000 |
| 15.—The Assiniboines, H.-I. | From the River Souris towards the North-West. | 2,000 | 52,000 |
| 16.—The Black-feet<br>The Blood Ind.<br>The Piégans AL. | The south-western region of the North-west, with part of the lands drained by the two branches of the Upper Kisiskatch'wan to the North. | 4,000<br>1,500<br>2,000 | 247,000 |
| 17.—The Sarcis, H.-I. (Adopted by the Black-feet.) | On the borders of the preceding | 200 | 6,000 |
| 18.—The Western Montagnais or Chippewayans, D.D. | From English River to Great Slave Lake, extending along the whole valley of the Athabaska. | 5,000 | 195,000 |
| 19.—The Cariboo Eaters, D.D. | In the Steppes to the North-east of the Montagnais. | 2,000 | 93,000 |
| 20.—The Yellow Knives, D.D. | To the east of Great Slave Lake, on the borders of the Cariboo Eaters. | 500 | 72,000 |
| 21.—The Dog Ribs, D.D. | North of Great Slave Lake | 1,500 | 67,000 |
| 22.—The Beavers, D.D. | On Peace River | 1,000 | 58,000 |
| 23.—The Slave Indians, D.D. (called "Strong Bows" by Franklin.) | North-west of Great Slave Lake, on the Mackenzie and Liard Rivers. | 1,200 | 73,000 |
| 24.—The Hares, D.D. | To the north of Great Bear Lake, bordering on the Esquimaux. | 800 | 68,000 |
| 25.—The Na'annès, D.D. | The mountains of the Mackenzie in the north-west, and north-east corner of Columbia. | 3,000 | 100,000 |
| 26.—The Daho-Dinnis, D.D. (Mauvais-Monde.) | The slopes of the Rocky Mountains, Rivière aux Liards, in Columbia, extending to the north in the North-west. | 1,500 | 57,000 |
| 27.—The Loucheux, D.D. | The western region of the North-west and the north-west region of British Columbia. | 4,000 | 171,000 |
| 28.—The Sekanis, D.D. | Between Peace River and Rivière aux Liards, in Columbia especially, going south, as far as the sources of the Fraser River, they occupy both slopes of the Rocky Mountains. | 2,500 | 85,000 |
| 29.—The Takalis, Carriers, D.D. | The interior of Columbia, from the Eastern frontier to the Upper Fraser. | 2,000 | 57,000 |
| 30.—The Kootanis, D.D. | South-eastern part of Columbia | 1,000 | 20,000 |
| 31.—The Haidahs, D.D. (4 clans). | Archipelago of Queen Charlotte's Islands and the coasts and mainland opposite. | 3,000 | 34,000 |
| 32.—The Chemmesyans, D.D. (4 clans). | Islands and mainland to the south of the preceding. | 1,000 | 12,000 |
| 33.—The Billacoolas, D.D. (8 clans.) | The estuaries and valleys of the rivers south of the preceding. | 1,500 | 20,000 |
| 34.—The Hailtsa, D.D. (8 clans.) | The northern part of Vancouver, and the coasts and mainland opposite. | 2,500 | 29,000 |
| 35.—The Noutkans or Wakash, D.D. (6 clans.) | Vancouver and coasts, and mainland opposite. | 3,000 | 34,000 |
| 36.—The Tsihaili Selish, D.D. (9 clans). | Southern part of Vancouver and the valley of the Fraser. | 5,000 | 52,000 |
| | Total | 102,358 | 3,498,000 |

Very stringent laws are enforced against persons selling intoxicating liquors to the Indians, and special attention is paid to the encouragement of agriculture amongst them.

In Ontario, tribes numbering about 16,000, are the most civilized, and own in real, personal, and invested property about $616 68c. per capita. Nearly all the district agents in Ontario report more desire for improvement, less intemperance, and growing habits of industry amongst the Indians.

The Quebec Indians number about 11,000, and the per cap. value of their property is $165.

The Nova Scotia Indians are about 1,849, and the value of their property is $25 per cap.

The New Brunswick Indians are 1,561 in number, and the value of their property is about $217 50c. per cap.

The Prince Edward Island Indians are 302; in Manitoba and the North-west there are nearly 15,000; and in British Columbia nearly 32,000.

The value of the reserves has increased more rapidly in Ontario than in the other provinces, and hence the greater wealth per capita, notwithstanding a greater number.

The total value of Indian property in the provinces of Nova Scotia, New Brunswick, Ontario, and Quebec is:—

| | $ |
|---|---|
| Personal - - - | 489,234 |
| Real Estate - - | 7,633,708 |
| Capital invested - - | 2,884,972 |
| | $11,007,914 |

## Geological Survey.

The commencement of a systematic investigation of the geology of Canada dates from the year 1841.

Before that time, however, several efforts had been made by men who appreciated its importance, to establish a Commission for the geological and mineralogical examination of the country, but it was only in 1841 that the Legislative Assembly, having voted a sum of $6,000 for a geological survey of the province, the Governor, Sir Charles Bagot, in 1842, named Mr. W. E. Logan, as geologist, and Mr. Alex. Murray, assistant, to put the project into execution. A second grant of $8,000 was made in 1845 for a period of five years, and in 1850 the grant was renewed for five years to 1855. The grant was then increased to $30,000 per annum, and finally to $45,000.

Since 1841 to the 30th June 1876 a sum of $740,000 has been spent on this service.

Mr. A. R. C. Selwyn, F.R.S., F.G.S., is at present the chief of this branch, with a very efficient staff of geologists, including a curator and paleontologist, and a chemical mineralogist.

An Act passed in the session of 1877 reorganized this service, bringing it more completely under the control of the Department of the Interior, and making better provision for a museum.

Full information will be found in the special catalogues of this section, and the Reports of the Survey. It is proposed here only to notice the results as bearing on the economic minerals, and their development.

Canada is rich in mineral wealth, not only as might be expected from her vast areas, covering a surface nearly as large as Europe, but from her varied geological formations.

Her Atlantic coast embraces, beside the coal measures, a large area of the oldest known rocks, the Laurentian, which bring up from the bowels of the earth, either within them or upon their broad shoulders, nearly all the known minerals. Her Pacific coast, over an area of several hundred thousand square miles, is composed of rocks similar to those in the great "bonanza" regions in Colorado and Nevada,—while it also, like the Atlantic coast, possesses the priceless value of abundant and excellent coal immediately upon tide water. Gypsum, like coal, is abundant on the Atlantic coast, and it is owing to the possession of excellent harbours, ship-building timber in close proximity to the same and home-produced cargoes of coal, lumber, gypsum, and fish, that the flag of the Dominion is in every sea, and Canada, in commercial marine, ranks higher than France or Germany.

The rich agricultural peninsula between the great lakes, while apparently without the precious metals, or the still more precious coal, furnishes petroleum, rock salt, and gypsum of the finest quality.

On the Pacific coast, in addition to coal and gold in quantity, as well as silver, copper, and lead,—mercury and platinum have been found.

The prairie regions show "lignite" coal, salt, and petroleum.

The following are the metals and minerals, &c. which are worked in the Dominion :—Gold, silver, copper, lead, iron (magnetic, hematite, chromic, and titanic), coal, lignite and albertite, apatite, graphite, mica, barytes, asbestos, slate, gypsum, petroleum, rock salt, antimony, iron pyrites and manganese. Iron ochres, soapstone, fire clays, and peat

fuel are produced, as well as grindstones and whetstones; lithographic stone and millstone grit have been found and used, as well as porphyry, agate, jaspar, amesthystine quartz, &c.

The value of exports of the mine in 1876 was $3,731,837, and is increasing. The export of phosphate of lime (apatite), which only commenced in 1873 with 195 tons, was 2,714 tons in 1876; the estimated production for 1878 is 7,000 tons. The phosphate deposits on the Ottawa river, within reach of railway and navigation, are said to be the most extensive yet discovered in any part of the world.

Fresh discoveries have given a new impulse to the gold product in British Columbia, and on a smaller scale in Quebec, and to those of silver in Ontario.

GOLD.—The total yield of gold in British Columbia since 1858 is $55,961,800. Last year the yield was $1,608,182, averaging $820 per man per annum.

The gold yield of Nova Scotia since 1862 has been 254,111 ounces, over $4,000,000 in value; the yield of 1877 was 16,882 ounces.

SILVER.—The "Silver Islet" mine, Lake Superior, is reported to have produced $2,500,000 worth of silver at a cost of $1,500,000 up to the spring of 1876, having then been worked about six years.

COAL.—There are 29 collieries in Nova Scotia, and four in British Columbia. The output of these last in 1877 was 154,052 tons.

The following is the mining return for Nova Scotia for the year 1877.

| Minerals. | | Quantities. | Greatest previous Production. | |
|---|---|---|---|---|
| | | | Quantities. | Years. |
| **METALLIC.** | | | | |
| Gold | Ounces | 16,802 | 27,314 | 1867 |
| Iron Ore | Tons | 18,603 | 15,274 | 1876 |
| Manganese Ore | " | 97 | 300 | 1865 |
| Copper | " | 285 | 45 | 1876 |
| Lead | " | 11 | 6 | 1876 |
| **NON-METALLIC.** | | | | |
| Coal | " | 757,496 | 1,051,467 | 1873 |
| Gypsum | " | 107,506 | 120,693 | 1873 |
| Freestone, &c. | " | 9,343 | 8,829 | 1874 |
| Limestone | " | 6,726 | 4,860 | 1875 |
| Barytes | " | 23 | 1,103 | 1869–70 |
| Moulding Sand | " | 160 | 300 | 1874 |

SLATE.—The Canadian slate, which is not far from the St.

Lawrence navigation, is finding a market in Europe, where it is prized for its strength, colour, and fineness.

SALT.—The salt measures of Ontario extend over an area of 1,200 square miles, and the diamond drill has established the thickness of solid rock salt at 126 feet, lying between 1,000 ft. and 1,400 ft. below the surface, upon the shores of Lake Huron at the harbour of Goderich. A shaft is being sunk with a view to mine the salt rock and ship it in bulk to Chicago, Cincinnati, and St. Louis, the great meat-curing centres of the continent.

This salt rock is of exceptional purity; one stratum, over 10 feet thick, is reputed to contain by analysis 99¾ per cent, of salt. It is now worked by boring—dissolving the rock by the surface water, which descends the bore hole—pumping up and evaporating in pans the strong brine so obtained. The cost per ton of this process is from $3½ to $4, but if worked like a coal mine, the cost would be reduced to less than half the present rate, and thus defy competition from the East.

The extension of the iron, coal, and salt trades of the Dominion has been limited by the fact that large ships coming to Quebec for timber, bring coal, salt, and pig iron as ballast. Moreover, the descending trade from the interior being always in the proportion of three or four tons down, to one ton upward, this "ballast" coal, iron, and salt, are carried inland, by this excess of light tonnage upwards, at merely nominal rates.

PETROLEUM.—The export of petroleum from America, which dates only from about 1861, and then comprised 1,329 barrels of crude oil, aggregated in 1876 the immense figure of 7,497,856 barrels.

In the township of Enniskillen, Ontario, Canada, oil was first obtained in 1860. The Devonian or oil-bearing system of rocks underlies a considerable portion of the western peninsular of Ontario. There are at Petrolia 517 pumping wells, 10 new wells drilling, and 14 repairing, making an aggregate of 541 wells.

The following table shows the manufacture, consumption, and export of Canadian petroleum:—

| Fiscal Year. | Manufactured during the Year. | Taken for Consumption. | Exported. |
|---|---|---|---|
| | galls. | galls. | galls. |
| 1871–72 - - | 10,269,993 | 3,665,263 | 6,730,738 |
| 1872–73 - - | 12,168,406 | 3,763,742 | 7,997,937 |
| 1873–74 - - | 5,626,902 | 4,335,146 | 888,156 |
| 1874–75 - - | 4,009,663 | 4,279,496 | 1,140 |
| 1875–76 - - | 4,838,215 | 4,550,187 | 47,246 |

# DEPARTMENT OF MARINE AND FISHERIES.

## *Dominion Marine.*

The Government of Canada own five screw, two paddle-wheel, and two small river police steamers, maintained at a cost of $250,000 per annum.

These are used chiefly in carrying supplies to the many and scattered lighthouses, for police purposes, for the protection of fisheries, and in relieving distressed vessels.

## *Merchant Marine.*

The following statements show the tonnage owned by Canada.

COMPARATIVE STATEMENT showing the Number of Vessels and Number of Tons on the Registry Books of the Dominion of Canada, on the 31st December 1873, 1874, 1875, and 1876.

| Provinces. | 1873. | | 1874. | | 1875. | | 1876. | |
|---|---|---|---|---|---|---|---|---|
| | Vessels. | Tons. | Vessels. | Tons. | Vessels. | Tons. | Vessels. | Tons. |
| New Brunswick - | 1,147 | 277,850 | 1,144 | 294,741 | 1,133 | 307,926 | 1,154 | 324,513 |
| Nova Scotia - - | 2,803 | 449,701 | 2,787 | 479,669 | 2,786 | 505,144 | 2,807 | 529,252 |
| Quebec - - - | 1,842 | 214,043 | 1,837 | 218,946 | 1,831 | 222,985 | 1,902 | 228,502 |
| Ontario - - - | 681 | 89,111 | 815 | 113,008 | 825 | 114,990 | 889 | 123,947 |
| Prince Edward Island | 280 | 38,918 | 312 | 48,388 | 335 | 50,677 | 338 | 50,692 |
| British Columbia - | 30 | 4,095 | 35 | 3,611 | 40 | 3,685 | 40 | 3,809 |
| Manitoba - - - | — | — | — | — | 2 | 178 | 2 | 178 |
| Total - - - | 6,783 | 1,073,718 | 6,930 | 1,158,363 | 6,952 | 1,205,565 | 7,192 | 1,260,893 |

Assuming $30 per ton to be a fair average, it will give the value of the registered tonnage of the Dominion on the 31st December 1876 as being $37,826,790, including old and new vessels, steamers, sailing vessels and barges of over 100 tons.

According to the following table, Canada's tonnage ranks *fifth* on the list of nations.

MERCHANT SHIPPING OF THE WORLD IN 1876.

(From the London Economist's Commercial History and Review, 1877.)

| Countries. | Sailing Vessels. | Tonnage. | Steam Vessels. | Tonnage. | Total Tonnage. |
|---|---|---|---|---|---|
| British (including Colonies) | 20,265 | 5,807,365 | 3,299 | 3,362,992 | 9,170,357 |
| United States - - - | 7,288 | 2,390,521 | 605 | 789,728 | 3,180,249 |
| Norwegian - - - | 4,749 | 1,410,903 | 122 | 55,874 | 1,466,777 |
| Italian - - - | 4,601 | 1,292,076 | 114 | 97,582 | 1,389,658 |
| Canadian - - - | — | — | — | — | 1,260,893 |
| German - - - | 3,456 | 875,995 | 226 | 226,888 | 1,102,853 |
| French - - - | 3,858 | 725,048 | 314 | 334,334 | 1,059,382 |
| Spanish - - - | 2,915 | 557,320 | 230 | 176,250 | 733,570 |

| Countries. | Sailing Vessels. | Tonnage. | Steam Vessels. | Tonnage. | Total Tonnage. |
|---|---|---|---|---|---|
| Greek - - - - | 2,121 | 426,905 | 11 | 7,133 | 434,038 |
| Dutch - - - - | 1,482 | 309,993 | 126 | 134,600 | 534,593 |
| Swedish - - - | 2,121 | 309,128 | 219 | 88,600 | 497,788 |
| Russian - - - | 1,785 | 391,952 | 151 | 105,962 | 497,914 |
| Austrian - - - | 983 | 338,684 | 78 | 81,269 | 419,953 |
| Danish - - - - | 1,348 | 188,953 | 87 | 60,697 | 249,650 |
| Portuguese - - - | 456 | 107,016 | 28 | 22,277 | 129,293 |
| South American - - | 273 | 95,459 | 81 | 59,263 | 154,722 |
| Central American - | 153 | 57,944 | 6 | 3,132 | 61,076 |
| Turkish and Egyptian - | 305 | 48,289 | 30 | 28,264 | 76,553 |
| Belgian - - - | 54 | 23,344 | 35 | 40,700 | 64,044 |
| Asiatic - - - - | 42 | 16,019 | 11 | 10,877 | 26,096 |
| Siberian - - - | 3 | 454 | — | — | 454 |

The Canadian tonnage, as given by Minister of Marine, for year ending 31st December 1877, is 1,310,468 tons.

Provision is made for the inspection of steamships and the examination and licensing of pilots and engineers, masters, and mates. Nautical schools are subsidised at St. John's, New Brunswick, and Halifax, Nova Scotia.

The interests of pilots and decayed pilots' funds are looked after by the Quebec Harbour Commissioners, who are appointed by the Dominion Government.

Homes for sick and distressed mariners are supported at various points by the Government at an annual cost of $60,000.

Testimonials and medals are presented by the Government to persons who show bravery in saving life from Canadian vessels.

### *Lighthouses.*

The whole coast line of Canada, both ocean and inland, is divided into districts, and a very complete system of lighthouses, beacons, and fog whistles is maintained.

There are over 450 lighthouses, 390 light stations, 25 steam fog whistles erected, and a force of nearly 500 men employed in this service.

The average annual expenditure for this purpose is for—

Construction - $100,000.
Maintenance - $400,000.

The lights are maintained by petroleum obtained and refined in Canada.

### Fisheries.

The following tables show the nature, extent, and value of the Canadian fisheries.

TABLE showing the Nature and Value of the Yield of Fisheries within the Dominion of Canada for the Year 187

TABLE showing the Nature and Value of the Yield of Fisheries within the Dominion of Canada for the Year 1876.

| Kinds of Fish. | Nova Scotia. | New Brunswick. | Quebec. | Ontario. | Prince Edward's Island. | Manitoba. | British Columbia. | Total. |
|---|---|---|---|---|---|---|---|---|
| | $ | $ | $ | $ | $ | $ | $ | $ |
| Codfish | 2,549,840 | 331,870 | 1,130,480 | — | 115,910 | — | — | 4,128,100 |
| Herrings | 673,397 | 656,730 | 422,056 | 53,907 | 37,165 | — | — | 1,843,255 |
| Mackerel | 714,263 | 30,610 | 49,750 | — | 203,064 | — | — | 997,687 |
| Haddock | 820,753 | 83,613 | 1,735 | — | 20 | — | — | 906,121 |
| Lobsters | 502,308 | 212,453 | 36,800 | — | 43,521 | — | — | 795,082 |
| Salmon | 105,087 | 140,482 | 64,880 | — | 1,554 | — | 78,773 | 390,776 |
| Hake | 90,842 | 113,452 | — | — | 52,017 | — | — | 256,311 |
| Whitefish | — | — | 20,418 | 219,755 | — | 3,677 | — | 243,850 |
| Pollock | 121,982 | 46,039 | — | — | — | — | — | 168,021 |
| Trout | 4,677 | 3,831 | 36,874 | 117,440 | 456 | — | — | 163,278 |
| Smelt | 25,897 | 93,552 | — | — | — | — | — | 119,449 |
| Shad | 44,620 | 38,960 | 14,240 | — | — | — | — | 97,820 |
| Alewives | 26,638 | 67,301 | — | — | 2,310 | — | — | 96,249 |
| Halibut | 56,462 | 4,398 | 1,098 | — | — | — | — | 61,958 |
| Eels | 15,507 | 9,864 | 29,643 | — | — | — | — | 55,014 |
| Oysters | 3,120 | 23,733 | — | — | 23,715 | — | — | 50,568 |
| Mixed fish, susios, ling, pike, bass, sturgeon, maskinonge, &c. | 483 | 17,331 | 142,965 | 46,127 | 360 | 26,914 | 900 | 235,082 |
| | 5,755,876 | 1,874,219 | 1,950,939 | 437,229 | 480,092 | 30,591 | 79,673 | 10,608,221 |
| Seal skins | — | — | 12,393 | — | — | — | — | 12,393 |
| Porpoise skins | — | — | 848 | — | — | — | — | 848 |
| Fish guano | 20,752 | 13,035 | — | — | — | — | — | 33,787 |
| Fish and clams, used as bait and manure. | 1,645 | 2,598 | 32,700 | — | — | — | — | 36,943 |
| Cod tongues and sounds | 6,076 | 525 | 1,593 | — | 4,158 | — | — | 12,352 |
| Cod liver oil | — | — | 59,135 | — | — | — | — | 59,135 |
| Seal oil | — | — | 27,563 | — | — | — | — | 27,563 |
| Whale oil | — | — | 4,809 | — | — | — | — | 4,809 |
| Porpoise oil | — | — | 7,684 | — | — | — | — | 7,684 |
| Fish oils | 224,688 | 63,119 | — | — | 10,716 | — | 25,024 | 323,547 |
| Fresh fish sold in Halifax market | 20,000 | — | — | — | — | — | — | 20,000 |
| | 6,029,037 | 1,953,496 | 2,097,664 | 437,229 | 494,966 | 30,591 | 104,697 | 11,147,288 |

STATEMENT showing the Tonnage, Men, and Capital employed in Fisheries in the Dominion on 31st December 1875.

| Provinces. | Vessels. | Tonnage. | Boats. | Value. | Men. | Nets. | Value. |
|---|---|---|---|---|---|---|---|
| | | | | $ | | | $ |
| Ontario - - | 14 | 286 | 1,200 | 78,865 | 3,527 | 8,942 | 27,759 |
| Quebec (above Quebec). | 256 | 14,655 | 5,219 | 683,183 | 10,616 | 6,630 | 142,237 |
| Ditto below ditto - | — | — | 1,014 | 15,018 | 1,167 | 337 | 4,945 |
| Nova Scotia - | 653 | 24,800 | 9,585 | 1,341,634 | 24,142 | 883,902 fathoms 827 weirs | 564,370 |
| New Brunswick - | 463 | 5,061 | 3,850 | 341,006 | 9,116 | 413,902 | 263,088 |
| British Columbia - | No Returns. | | | | | | |
| Prince Edward Island | 7 | 385 | 991 | 57,218 | 3,866 | 23,566 fathoms | 8,721 |
| Manitoba - - | — | — | 351 | 2,008 | 451 | 1,504 | 5,120 |
| Total - - | 1,393 | 45,167 | 22,210 | $2,518,932 | 52,885 | - - - | $1,016,231 2,518,932 |
| | | | | | | | $3,535,163 |

The following statement shows the destination and value of Canadian exports of fish for the year 1876.

| | $ |
|---|---|
| United States - - - | 1,475,330 |
| British West Indies - - - | 1,348,637 |
| Spanish West Indies - - | 825,287 |
| Great Britain - - - | 687,312 |
| South America - - - | 297,609 |
| French West Indies - - - | 239,724 |
| British Guiana - - - | 190,661 |
| Italy - - - - | 139,387 |
| Hayti - - - - | 90,999 |
| Danish West Indies - - - | 52,988 |
| Portugal - - - - | 51,836 |
| Newfoundland - - - | 50,299 |
| Australia - - - - | 16,492 |
| Madeira - - - - | 14,960 |
| Other countries - - - | 19,700 |
| Total - - | $5,501,221 |

## FISH PROTECTION AND CULTURE.

This important branch is under the immediate control of a Commissioner of Fisheries. During the close seasons the fish are watched by a large staff of officers, who are *ex officio* magistrates, assisted by lockmasters, lighthouse keepers, and the Dominion Police.

The regular staff is 582 in number, exclusive of the officers of the Department.

There are now seven public establishments for fish culture. Nearly 3,000 salmon were caught by anglers with the artificial fly, and 14,000,000 of salmon eggs were deposited in various rivers—last year.

The total expenditure on account of fish breeding in the Dominion from 1869 to 1877 was $108,834.

## DEPARTMENT OF AGRICULTURE.

Agriculture is not only the most important of Canadian industries, exceeding any other in the annual value of its products, but it also now forms the leading interest in *value* in Canadian exports. The products of the forest still employ the greatest quantity of *tonnage*, and, until within a few years past, the *value* of the exports of the products of the forest exceeded that of those of the field. Formerly, wheat was almost the only export, and unfavourable conditions for this, became a provincial calamity, but now the value of barley and rye exported is sometimes as great as that of wheat, while dairy farming has been so successful that the value of cheese exported has risen from $549,572 in 1869 to $4,050,008 in 1876, besides $2,579,431 in value of butter and $508,425 worth of eggs in the same year. Three-fourths of the butter and nearly the whole of the cheese go to Great Britain. An export trade in horses, cattle, sheep, and hogs has recently arisen, the receipts of which, from Canada direct, at Liverpool, London, and Glasgow have been as follows:—

| Years. | Horses. | Cattle. | Sheep. | Hogs. |
|---|---|---|---|---|
| 1876 - - | 352 | 2,767 | 2,607 | —— |
| 1877 - - | 298 | 7,412 | 6,825 | 373 |

The number of Canadian horses imported into Great Britain in 1877, according to Mr. Dyke, Canadian Emigration Agent at Liverpool, from whose report these figures are taken, was over 1,000, three-fourths of which were shipped *viâ* New York.

Forty-two head of the cattle, thoroughbreds, sold for 17,150*l.*:—two of this herd brought 8,400 guineas 4,300 and 4,100 guineas respectively.

One of the fat cattle weighed 3,600 lbs.

There are no later agricultural statistics than those of the census of 1871, and the figures above given, prove how useless a reference to them would now be with respect to a country growing so rapidly and changing her system of agriculture from "bare grain" to that of stock raising and dairy farming.

Canada possesses the great advantage of having, between Lake Superior and the Atlantic, an exporting agricultural district, which is in close proximity to the food importing States of New York and New England, where the highest American prices are obtained in a market which the Canadians can reach in much less time and at less cost than the farmer on the prairies west of Chicago.

The general statement of exports gives the relative values of different agricultural exports. Some tables in the Appendix give more details as to wheat and flour, and barley.

## DEPARTMENT OF MILITIA.

The Canadian militia consists of all male British subjects between the ages of 18 and 60 years, not exempted or disqualified by law. These are divided into four classes, establishing the order in which they will be called upon to serve.

1st Class: Unmarried men, or widowers without children, between 18 and 30 years.

2nd Class: Unmarried men, or widowers without children, between 30 and 45 years.

3rd Class: All married men, or widowers with children, between 18 and 45 years.

4th Class: All between the ages of 45 and 60 years.

The Militia is divided into "Active" and "Reserve." The Active consists of Volunteer, Regular and Marine Militia.

The Volunteer is composed of corps raised by voluntary enlistment.

The Regular consists of volunteers for that service, or of balloted men.

The Marine or seamen of sailors on steam and sailing craft of the Dominion.

The Reserve embraces the whole not serving in the Active Militia for the time being.

The active force is by law fixed at 40,000 men—the reserve at 600,000.

Provision is made for annual paid drills from 8 to 16 days of 40,000 men in addition to officers of the Reserve, the number being regulated by the money vote of Parliament each year. For the present the number is 30,000.

The Active Militia is clothed, armed with breech-loaders, and equipped ready to take the field at short notice.

The number called out for annual drill has ranged from 20,000 to 40,000 and over, according to the money voted for the purpose.

The returns of the Reserve show a force of over 700,000 men upon the rolls.

After the Fenian invasion the Volunteer force tendering service was 45,040 men. In 1869 the Active force was as follows:—

| | Officers and men. |
|---|---|
| Cavalry - - - - | 1,500 |
| 10 Field Batteries (42 guns, 441 horses) | 750 |
| Garrison Artillery - - - | 3,558 |
| 4 Companies Engineers - - | 232 |
| Naval Brigade, Halifax - - | 233 |
| 73 Battalions Rifles and Infantry - | 37,268 |
| Total - - | 43,541 |

In 1870 the Fenians entered the Province of Quebec at two points, and were met in both cases by Volunteers in sufficient force to defeat them. The men were called out on the 24th of May, and on the 27th, 13,540 officers and men were reported at the posts assigned them.

Dominion Artillery Corps have replaced the Imperial troops at Quebec and Kingston, at both of which places there are schools of gunnery. Infantry schools are established at Toronto, Kingston, Montreal, Quebec, Fredericton and Halifax, at which thousands of officers have obtained certificates.

A military college for the education of cadets, with a four years course of study, is established at Kingston.

## EDUCATION.

Under the direction of the various provinces, Canada possesses a superior educational system. Education of the best description is brought within the reach of the poorest.

In the provinces of Ontario and Quebec the denominational system obtains, the rights of minorities being protected under the British North America Act (Confederation Act). Under the law in Ontario, a certain number of Roman Catholics in a school section, giving proper notice to the Educational Department, may establish a separate school, which is supported by taxation imposed by the trustees legally elected, and collected under the provisions of the law. Each school receives from the Government of the province an annual grant on the basis of the average attendance.

The same may be said with regard to the minorities in Quebec and Manitoba.

With reference to New Brunswick, the fact that no provision was made under the Act of Confederation for the rights of the minority has given rise to much agitation on the subject.

In Nova Scotia the principle of separate schools was recognized prior to Confederation, and, owing to the good understanding that always obtained there between Roman Catholics and Protestants, the same system still continues in operation to the satisfaction of all parties.

In Prince Edward Island the school question is in somewhat the same position as in New Brunswick.

The province of Ontario, especially, takes the highest rank in primary instruction, the number of scholars attending the schools in that province reaching as high as 23 per cent. of the total population, a proportion not yet attained in any other country.

The following are the principal provisions of the Ontario Education Acts :—

The Minister of Education apportions the annual grant in aid of schools according to the ratio of the population.

No Government aid is given for providing libraries, prizes, maps, &c., unless an equal amount is contributed from local sources for the same object, but the Government will pay half the cost of any such library, &c., when provided by any municipal or school corporation.

All public schools are free schools.

Every child from the age of seven to twelve years has the right to attend school or be otherwise educated for four months in the year, and a penalty is imposed upon parents or guardians neglecting this provision.

Pupils are not required to observe religious exercises objected to by their parents, but they may receive such religious instruction as their parents desire.

For each rural section there must be three trustees holding office for three years.

Supporters of separate or denominational schools are debarred from voting at the election of public school trustees.

It is the duty of the county council to raise an equivalent amount to that apportioned by the Minister of Education for the payment of teachers' salaries, &c.

The amount expended for educational purposes in Ontario in 1874 was $3,587,951 61.

Schools are divided into Primary, Secondary, or Grammar Schools, and Collegiate Institutes, with the University in perspective for deserving and distinguished pupils.

The gradation from one to another is through proficiency shown at public examination for the purpose.

Most valuable adjuncts to the educational system are the Normal and Model Schools for the training of teachers, who must hold various diplomas and 1st, 2nd, or 3rd class certificates before engaging in teaching in these schools.

The distribution of the expenditure for public schools in Ontario, exclusive of high schools and separate schools, in 187½ was as follows:—

| | $ c. |
|---|---|
| Teachers' salaries - - - | 1,647,750 29 |
| Maps, apparatus, libraries, prizes, &c. | 54,989 26 |
| Rents and repairs of school-houses - | 154,036 54 |
| Sites and building of school-houses - | 699,547 87 |
| School books, stationery, fuel, &c. - | 309,008 95 |
| Total expenditure for public schools | $2,865,332 91 |

The total expenditure for all public school purposes in Ontario for 1876 was $3,006,456.

The total amount raised for public instruction in the province of Quebec for the year 1876–77 was $1,449,336, of which $150,705 21 was the Government grant, $802,422 26 school fees, the remainder school assessment.

The following statistics are taken from "Instruction Publique au Canada," by Hon. M. Chauveau, formerly Chief Superintendent of Education for the Province of Quebec.

TABLE showing the Number of SCHOOLS and ATTENDANTS, classified, as also the Proportion of SCHOOLS and COLLEGES to the POPULATION.

| Provinces and Territories. | Universities and Colleges. | Scholars. | Special Schools. | Scholars. | High Schools, Grammar and Private Schools. | Scholars. | Normal Schools. | Pupil Teachers | Primary Schools. | Scholars. | Total Schools. | Total Scholars. | No. of Inhabitants for One School on estimated Population of 1875. | No. of Inhabitants for One Scholar on Population of 1875. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ontario - | 16 | 2,700 | 21 | 1,415 | 201 | 10,685 | 2 | 225 | 4,947 | 470,3[illegible] | 5,187 | 485,832 | 334 | 3·55 |
| Quebec - | 44 | 8,261 | 24 | 1,362 | 189 | 22,896 | 3 | 275 | 4,115 | 196,762 | 4,375 | 229,556 | 281 | 5·36 |
| New Brunswick | 3 | 186 | 4 | 224 | 28 | 2,827 | 1 | 109 | 1,168 | 60,513 | 1,204 | 63,859 | 251 | 4·72 |
| Nova Scotia - | 6 | 197 | 5 | 279 | 18 | 3,285 | 1 | 112 | 1,729 | 91,998 | 1,759 | 95,873 | 283 | 4·33 |
| Prince Edward Island. | 2 | 120 | — | — | 25 | 1,344 | 1 | 84 | 390 | 14,410 | 418 | 15,958 | 240 | 6·30 |
| Labrador - | — | — | — | — | — | — | — | — | 5 | 162 | 5 | 162 | — | — |
| Manitoba - | 3 | 130 | — | — | 1 | 30 | — | — | 43 | 2,246 | 47 | 2,406 | 372 | 7·30 |
| Keewatin - | — | — | — | — | — | — | — | — | 4 | 80 | 4 | 80 | 2,123* | 101·38 |
| North-west Terr. | — | — | — | — | — | — | — | — | 22 | 434 | 22 | 434 | | |
| British Columbia | 1 | 80 | — | — | 8 | 250 | — | — | 65 | 2,000 | 74 | 2,330 | 520 | 16·52 |
| Total - | 75 | 11,674 | 54 | 3,280 | 470 | 41,317 | 8 | 805 | 12,488 | 838,932 | 13,095 | 896,390 | — | — |

* Including Labrador.

TABLE showing CHARITABLE and SCIENTIFIC SOCIE[illegible]

* Including Labrador.

TABLE showing CHARITABLE and SCIENTIFIC SCHOOLS, and Number of INMATES and STUDENTS.

| Provinces. | Deaf Mutes. | No. of Inmates. | Blind. | No. of Inmates. | Reformatories and Industrial. | No. of Inmates. | Polytechnic. | No. of Inmates. | Art and Trade Schools for Adults. | No. of Inmates. | Agriculture. | No. of Inmates. | Veterinary. | No. of Inmates. | Navigation, Naval. | No. of Inmates. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ontario - | 1 | 210 | 1 | 150 | 1 | 173 | 1 | 30 | 15 | 772 | 1 | 50 | 1 | 30 | — | — |
| Quebec | 3 | 271 | 1 | 40 | 5 | 540 | 2 | 61 | 8 | 590 | 3 | 30 | 1 | 20 | 1 | 10 |
| New Brunswick | 1 | 40 | — | — | — | — | — | — | 1 | 100 | — | — | — | — | 2 | 84 |
| Nova Scotia - | 1 | 64 | 1 | 20 | 1 | 75 | — | — | 1 | 60 | — | — | — | — | 1 | 62 |
| | 6 | 585 | 3 | 210 | 7 | 788 | 3 | 91 | 25 | 1,522 | 4 | 80 | 2 | 50 | 4 | 156 |

NUMBER of PERSONS above 20 Years incapable of Reading or Writing (on basis of Population Census, 1871).

| Provinces. | Men. | Unable to read. | Women. | Unable to read. | Men unable to write. | Women unable to write. |
|---|---|---|---|---|---|---|
| Ontario - - | 375,531 | 29,406 | 350,035 | 27,973 | 42,589 | 50,631 |
| Quebec - - | 265,249 | 107,782 | 268,649 | 84,080 | 123,926 | 120,805 |
| New Brunswick - | 67,351 | 10,197 | 64,116 | 8,805 | 13,245 | 14,424 |
| Nova Scotia - | 92,092 | 13,719 | 94,277 | 17,613 | 18,961 | 27,561 |

PROGRESS of PUBLIC INSTRUCTION in ONTARIO since the Establishment of the Department of Education in 1842.

| Years. | Universities and Colleges in operation. | No. of Pupils. | High Schools. | No. of Pupils. | Academies and Private Schools. | No. of Pupils. | Normal and Model Schools. | No. of Pupils. | Public or common Schools. | No. of Pupils. | Roman Catholic separate Schools. | No. of Pupils. | Educational Institutions of all kinds. | No. of Pupils. | Grand Total of Expenses for Education. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | $ |
| 1842 | 5 | No reports. | | — | 44 | — | — | — | 1,721 | 65,978 | — | — | — | Report incomplete. | — |
| 1852 | 8 | 751 | 60 | 2,343 | 181 | 5,684 | 3 | 181 | 2,992 | 179,587 | 18 | — | 3,262 | 189,010 | 529,314 |
| 1862 | 13 | 1,373 | 91 | 4,982 | 342 | 6,784 | 3 | 645 | 3,995 | 329,033 | 109 | 14,700 | 4,554 | 357,752 | 1,231,993 |
| 1872 | 16 | 2,700 | 104 | 7,968 | 258 | 6,670 | 3 | 800 | 4,490 | 433,256 | 171 | 21,406 | 5,042 | 472,800 | 2,207,364 |
| 1873 | 16 | 2,700 | 108 | 8,437 | 265 | 7,758 | 3 | 800 | 4,662 | 438,911 | 170 | 22,073 | 5,124 | 480,679 | 2,604,526 |
| 1874 | — | — | 108 | — | — | — | — | — | 4,758 | 464,047 | — | — | — | 483,861 | 3,587,951 |

## MUNICIPALITIES.

Municipal institutions extend over the whole of the provinces of Ontario and Quebec, and have reached their highest development in the former province. If the province of Ontario possesses any advantage over her sisters, in soil, climate, or geographical position, there is no doubt that for the greater use she has made of them, she is primarily indebted to her municipal institutions.

Previous to 1840, the people looked to the Central Government for a distribution of the surplus revenues derived from import duties. This was sometimes neither fairly made nor wisely expended by the nominees of the Government. On the other hand, a combination of powerful interests, by what is called "log-rolling," compelled the Government to undertake works of a strictly local and sometimes useless character at the general expense. The municipal system relieves both the Government and the people, who have now perfect control of their local affairs, and their township, village, town, city, and county councils are the primary political training schools for the Provincial and Dominion Parliaments; and, by diffusing general knowledge and correct ideas about public business, demonstrating the necessity for patience and compromise, enable the people to understand, and prepare them to acquiesce in the necessities of the general legislation.

The following are some of the provisions of the Ontario Municipal Acts.

Every county, city, township, and town is incorporated, and all villages having 750 inhabitants may become [illegible]y a byleaw of the county council which the latter is [illegible]d to pass on petition of 100 freeholders and householders. The area of villages is restricted to 500 acres for the first 1,000 inhabitants and 200 acres further addition may be made for each 1,000 inhabitants.

Any town having over 15,000 inhabitants may be erected into a city, and any incorporated village containing over 2,000 inhabitants may be erected into a town.

The county councils consist of the reeves and deputy reeves of the townships and villages within the county, and of any towns which have not withdrawn from the jurisdiction of the county council. This council is presided over by one of the reeves who is chosen as the warden of the county.

A township or village having 500 freeholders is entitled to a deputy reeve, thus having two votes in the county

council; and for every additional 500 votes an additional deputy reeve with vote in the county council. All the elected members of every municipality must be resident freeholders or leaseholders and British subjects of full age. The qualification for voters at municipal elections are freehold, household, income, or "farmer's son." The real property qualification is in—

| | | | |
|---|---|---|---|
| Townships - | - $100 | Towns | - $300 |
| Incorporated villages | - $200 | Cities | - 400 |

Farmer's sons of age, residing at home, may without other qualification, vote, the number of sons so qualified depending on the value of the homestead.

All voting is by ballot.

The head of every council and the reeve of every town, township, and incorporated village, are ex officio justices of the peace.

The county councils erect and maintain the gaols and courthouses, houses of correction, and houses of industry, which may be those for any city or town within the county, or these last may erect their own gaols, &c.

## LUMBER TRADE.

The wood trade of Canada, though second in importance to that of the products of agriculture, furnishes the greatest amount of export tonnage. The exports by sea are chiefly to Britain, and embrace square timber, staves and deals. The timbers are oak, elm, ash, birch, maple, tamarac, and white and red pine:—the deals are both pine and spruce.

Sawn lumber, 95 per cent. of which goes to the United States, reached its highest figure in 1873–74 when 911,794,000 feet, board measure, were exported. Exports of products of the forest are made to South America, the West Indies, and Australia. The value of the exports of forest products, which in 1873 reached $28,586,816, is now by decrease in demand and prices, a little above $20,000,000, while that of the agricultural exports has risen to $34,657,319.

## MANUFACTURES.

If the census returns of 1871 are antiquated as regards the present state of agriculture in Canada, they are still more so with respect to manufactures, for in them Canada has made greater strides since that census than at any

previous period. The value of her exports of manufactured articles in 1876 was $5,353,367, being greater than that of products of the mine, and about equal to that of the fisheries. Excluded from a market for her manufactures in the United States, she has happily been forced to compete with her American neighbours in foreign markets for that class of manufactures which are made as well and more cheaply in Canada than in the United States.

In manufactures of wool (tweeds and flannels) and of leather (boots and shoes), in agricultural machinery and implements, manufactures of wood, furniture and chairs, and those in which wood is an important factor, as carriages, wooden ware, and brooms, in all the lighter manufactures of metal, as edge tools, sewing machines, cheap clocks, Canada is able to furnish an article which, price and quality combined, will compete, on equal footing, with those of any other country.

Although unable to show the extent and diversity of the manufacturing interest, some estimate may be formed from that of the city of Montreal in which there were in 1875 over 1,100 establishments employing 21,000 operatives at an annual cost of $5,195,465 for wages, $19,028,062 for raw material, the value of articles annually produced being $32,727,946.

# APPENDICES.

## A.

### The Lake and St. Lawrence River Route.

*The Canadian Canals.*

The Welland Canal, 28 miles long, extends from Port Colborne on Lake Erie, about 20 miles west of Buffalo, to Port Dalhousie, on Lake Ontario. It had on its original construction 27 locks, with a lockage lift of 330 feet. The locks previous to the enlargement now being made were 150 ft. by 26½ ft. in the chambers, with 10 feet of water over the mitre sills, and could pass vessels of 400 to 450 tons measurement carrying about 600 to 650 tons cargo. The locks now being constructed are 270 ft. long by 45 ft. wide, and are designed for 14 ft. draught of water, making them navigable for vessels of 1,500 to 1,800 tons. The prism of the canal is being enlarged to dimensions corresponding with the enlarged locks. The enlarged canal, when completed, will have three times the capacity it had before enlargement.

The St. Lawrence Canals are comprised in seven divisions, viz., the Lachine, 8½ miles long, with five locks having a lift of 44¾; the Beauhornois Canal, 11¼ miles long, with nine locks having a lift of 82½ ft.; the Cornwall Canal, 11½ miles long, with seven locks having a lift of 48 feet; the Farrands Point Canal, with one lock of 4 ft. lift; the Rapid Plat Canal, with two locks having a lift of 11½ ft.; the Galops and Point Iroquois, with three locks having 15¾ ft. lift. The last four canals are 9¼ miles long. These seven canals are 41 miles long, with 27 locks, having an aggregate lift of 206½ ft. The locks before the enlargement now in progress were 200 ft. long by 45 ft. wide, adapted to vessels with a draught of 10 ft. of water. The reconstructing locks are 270 ft. long by 45 ft. wide, and adapted to vessels drawing 14 ft. of water. The aggregate of the length of the Welland and St. Lawrence Canals is 69 miles, with lockage lift of 536½ ft. Lake Ontario is the feeder of the St. Lawrence Canals, and Lake Erie the feeder of the Welland Canal. The great bulk of the trade over this route will be downward, with the current in its favour the entire distance.

The Erie Canal is 350 miles long from Buffalo to Albany, and 345 miles to the Hudson river at Troy. It has 72 locks, 110 ft. long by 18 ft. wide, with the present lock gates admitting boats only 96½ ft. in length, drawing 6½ ft. of water, and carrying about 240 tons. The lockage lift of the 72 locks on the Erie Canal is 654 ft. From Buffalo to Montezuma the Erie Canal is fed from

the waters of Lake Erie, and from thence to Albany from various sources, natural and artificial.

The average lengths of the navigation season for a period of 25 years have been 219½ days for the St. Lawrence Canals, 234 days for the Welland Canal, and 215 days for the Erie Canal.

The distance from Chicago to Montreal, *viâ* the Lakes, the Welland and St. Lawrence Canals, is 1,261 miles, while from Chicago to New York, *viâ* the Lakes, Buffalo, the Erie Canal, and the Hudson River, it is 1,400 miles, a difference of 139 miles in favour of the St. Lawrence route. The distance from Montreal to Liverpool, *viâ* Belle Isle Straits, is 2,790 miles, and 2,990 *viâ* Cape Race, against 3,040 miles from New York to Liverpool. The distance from Chicago to Liverpool, *viâ* Montreal and the Straits of Belle Isle, is 4,057 miles, and *viâ* Montreal and Cape Race 4,251 miles, against 4,459 miles *viâ* New York, a difference in favour of the St. Lawrence route of 208 to 408 miles.

The course of inland transportation, *viâ* the provinces of Ontario and Quebec, has been usually from Chicago, Milwaukie, and Toledo in steamers carrying 18,000 to 20,000 bushels to Kingston direct, passing through the Welland Canal.

Another route is from western lake ports and Lake Erie ports by vessels of larger size carrying 30,000 to 35,000 bushels (mostly steam propellers) to Port Colborne, at the foot of Lake Erie; thence by Welland Railway or the line of the Welland Canal to Port Dalhousie, at the head of Lake Ontario, where it is again transferred into vessels for Kingston. When freight charges are too dear by this route, shipments are made from Chicago and Milwaukie to Collingwood, on the easterly side of Lake Huron, and from thence by the Northern Railway to Toronto, and thence by vessels to Kingston.

At Kingston grain is transferred into standard barges carrying 18,000 to 20,000 bushels, which are towed to Montreal.

Shipments are also made from Milwaukie and Chicago to Montreal direct, sometimes in small schooners, but much more frequently in steam propellers carrying 16,000 to 17,000 bushels of grain to Kingston, and 10,000 to 12,000 thence to Montreal; also by large vessels from Chicago and Milwaukie to Goderich, on Lake Huron, and thence, by Grand Trunk Railway, to Montreal. The freight charges from Lake Michigan ports to Montreal are, by either route, about the same. Neither steamers or railways can command higher rates of freight than charged by sailing schooners and barges.

The rates of freight from Chicago and Montreal to Kingston in 1876 were from 6 to 7½ cents per bushel, with 3 to 3½ cents additional charges for the barge transportation from thence to Montreal, or an aggregate of 9 to 11 cents per bushel, equal to $3 00c. $3 67c. per ton from Chicago to Montreal. The rate in 1877, including freight from Chicago to Kingston and barge charges of 3 to 3½ cents per bushel from thence to Montreal, was $3·626 on wheat and $3·396 per ton on corn, including all charges. The rate per ton per mile in 1877 was 2·875 mills on

wheat and 2·693 mills on corn, against 2·379 mills on corn and 2·81 mills per ton per mile, including all tolls and charges.

There have been practical experiments made with small and large vessels, sail and steam, on the lakes, and with small and large class canal boats, and the results of these experiments have been to diminish largely the cost of transportation by water. On the Erie Canal the changes have been from 55 to 76 tons, from 76 to 90 tons, from 90 to 210 tons, and from 210 to 240 tons.

All of these cheapened the carriage of property, the cost of it being with 240 ton boats 2·16—100 mills per ton per mile against 4·14—100 mills per ton per mile with 76 ton boats. The State Engineer in his report on canal enlargement makes the cost of transport on 690-ton canal boats 1·04—100 mills per ton per mile. The reduction in the cost of transport on the lakes from the use of very large class vessels in place of the small ones in use in 1845 is much more marked than the reduction on the canals, as the lake vessels of the largest class have fifteen hundred times the capacity of the largest vessels in use in 1845. The cost now from Chicago to Buffalo per ton on these largest vessels is about half a mill per ton per mile, or 45 cents per ton for freight 900 miles.

The vessels now navigating the lakes through the Canadian canals carry from 17,000 to 20,000 bushels of grain, but on the completion of their enlargement vessels carrying 60,000 bushels will load at Chicago for Kingston or Montreal direct at about one-third the present cost by small vessels. As compared with the water route through New York, there is a saving of 139 miles in the distance and 278 miles on the round trip. The rates the past year and the year before from Chicago to Montreal were about the same as from Chicago to New York.

It is proposed to make the Erie canals free to commerce, charging no tolls for their use. This would diminish the cost 69 cents per ton, but this will not meet the reduction in cost made by the use of vessels on the St. Lawrence route of 60,000 bushels carriage capacity.

The steamer with her barge consort has been for several years in use on the lakes with very practical financial results. The experiment of a steamer and barge consort on the canals last season shows this method to be cheaper than single boats towed in the line or with their own horses. One crew is saved and better time made than with boats towed by animal power. (*E. H. Walker, N. Y. Produce Exchange.*)

## B.

### Comparative Practical Results from Large and Small Vessels navigating the Lakes.

In 1850 the largest screw steamers navigating the lakes had a carrying capacity for 600 tons of freight; in 1853 it was increased to 800 tons, and the capacity has been augmented in

the new screw steamers built from year to year till, in 1877, screw steamers have been built having a carrying capacity of from 2,200 to 2,500 tons. There are being built during the winter of 1877–78 six screw steamers for the lakes with a carrying capacity for 2,500 tons of freight.

For illustration, a sailing vessel on the lakes, running between Chicago and Buffalo, a distance either way 900 miles, carrying a down cargo of 588 tons of corn and an up cargo of 600 tons of coal, at a cost of $696 70c. actual expenses paid, not including insurance and wear and tear of vessel, received for freight charges $420 on the down cargo and $360 on the up cargo, or an aggregate of $780 against expenses $696 70c., leaving a profit of $83 30c. for the round trip. The two cargoes up and down were carried at an actual cost of $6 70c., which, being divided, allotting one half of the expenses to the down cargo and one half to the up cargo, made the rate per ton per mile on 588 tons down 658—1000 of a mill, and on the up cargo of 600 tons 645—1000 of a mill, per ton per mile, and for round trip 651—1000 of a mill was the cost per ton per mile, equal to 58·59 cents per ton.

With a larger class sailing vessel carrying 1,680 tons of corn from Chicago to Buffalo, with a return cargo of 1,500 tons of coal from Buffalo to Chicago, at actual expenses paid of 1,360 for the round trip, exclusive of insurance on hull of vessel and ordinary wear and tear, the cost per ton on down cargo was 40·47—100 cents, and on the up cargo 45·33—100 cents, or 449—1000 mills per ton per mile on the down cargo and 504—1000 of one mill on the up cargo. The cost per ton per mile for the round trip was 475—1000 of a mill; but this larger vessel received the same rates of freight as the smaller vessel, giving $1,200 on the down cargo and $900 on the up cargo, or an aggregate receipt for freight for the round trip of $2,100 against $1,360 expenses, resulting in a profit of $740, against a profit of $83 30c. on the smaller vessel. With a small decrease in the cost per ton per mile there was a large increase in the net profit of the larger over the smaller vessel. The difference, however, is much more marked in the net results. The smaller vessel with the same expenses as before, and the same number of tons cargo, but receiving $840 for the 588 tons down cargo, which is 4 cents per bushel for corn and $1 per ton for the 600 tons of coal up, would give a profit of $743 30c., while the larger vessel with expenses the same as in first statement, but receiving $2,400 for the 1,680 down cargo, which is 4 cents per bushel for corn, and $1,500 for the 1,500 tons up cargo, or an aggregate freight for the round trip of $3,900, against $1,360 expenses, would give a net profit of $2,540.

The results obtained from the larger class of steamers and sailing vessels invite the investment of capital in the building of this class of vessels. The ratio of expenses to results is much more favourable to the larger than the smaller class of vessels.

The comparative practical results obtained from the trip sheet

of a small and a large screw steamer are thus stated: The smaller takes a cargo from Chicago to Buffalo of 40,000 bushels of corn, equal to 1,120 tons, and an up cargo of coal of 900 tons, while the larger takes a cargo of 90,000 bushels of corn, equal to 2,520 tons down cargo and 2,200 tons of up cargo.

The smaller steamer receives freight on the 40,000 bushels of corn 2 cents per bushel, or $800, and on the 900 tons of up cargo 60 cents per ton, or $540, making the aggregate freight for the round trip $1,340, against $1,167 actual expenses paid, but excluding insurance on steamer's hull and ordinary wear and tear, giving a profit on the trip of $173.

The larger steamer received for freight on 2,520 tons or 90,000 bushels of corn at 2 cents per bushel, $1,800, and on the up cargo of 2,200 tons of freight at 60 cents per ton $1,320, giving an aggregate freight list for the round trip of $3,120 against $1,722 50 expenses for the round trip, resulting in a net profit of $1,397 50 against $173 profit by the smaller steamer.

The expenses charged against the trip earnings do not include the insurance on steamers' hulls, or the wear and tear, or depreciation to keep stock good. The actual cost per ton as per expenses charged, dividing expenses equally between up and down cargoes, was, on the small steamer, on the down cargo, 52 1–10 cents, equal on 900 miles distance, to 579–1000 of a mill per ton per mile, and on the up cargo of 900 tons 62 cents and 61–100 of a cent per ton, equal to 695–1000 of a mill per ton per mile, versus the larger steamer with 2,590 tons of down cargo at 34 18–100 cents per ton, cost equal to 3799–10000 of a mill per ton per mile, and on the up cargo of 2,200 tons cost 39 14–100 cents per ton, equal to 434–1000 of a mill per ton per mile for 900 miles. The cost per ton per mile for the round trip was on the smaller steamer 642–1000 of a mill versus 405–1000 of a mill on the larger steamer.

The difference between the results of the trip of the smaller steamer and the large one will be more marked with higher rates of freight on same cargoes.

The smaller steamer with a down cargo of 40,000 bushels of corn at 4 cents per bushel would give an aggregate freight of $1,600, and 900 tons of up cargo at $1 per ton would give $900 or $2,500 receipts for freight for round trip against $1,167 expenses, resulting in a net profit of $1,433.

The larger steamer with a down cargo of 90,000 bushels of corn would give a round sum of $3,600 and 2,200 tons of up cargo at $1 per ton would give a freight list for the round trip of $5,800 versus expenses for the round trip $1,722 50, giving a net profit of $4,077 50.

The sailing vessels on the lakes will make a round trip between Buffalo and Chicago in about a month, while screw steamers will make an average of two trips per month and a fraction more.

[A "mill" is the tenth part of a cent, and a cent is almost equivalent to an English halfpenny or a French sou, and is therefore

about half a centime. If therefore "the actual expenses paid," exclusive of insurance and wear and tear, for transport on the lakes is less than one mill per ton per mile, railway competition need never be feared, as the lowest estimate of the net cost by rail on the trunk lines between east and west is *four* mills per ton per mile.]

"Before the war the cost of movement on the leading lines of railway was 1¼ cents per ton per mile.

"In 1875 on the trunk lines the rate averaged about 8 mills, and in 1876, only 6. The Pennsylvania R. R. reporting under 6, the Philadelphia and Erie 5, New York Central 7, and Lake Shore 5½ mills. It is the opinion of the more prominent managers of the trunk lines between the east and the west that the net cost per ton per mile for long distances will not much exceed 4 mills." (*E. H. Walker, Statistician, New York Produce Exchange.*)

## C.

### Terminal Charges at the Seaboard Ports of Export.

At Montreal there are seven grain elevators connected with warehousing facilities for transferring grain from vessels and four from railway cars, making 11 in all, each with a transfer capacity for handling 3,000 to 4,000 bushels of grain per hour. These elevators and their connecting warehouses have a storage capacity for 2,000,000 bushels of grain; besides which the Montreal Elevating Company have 11 floating harbour elevators, each with a capacity for handling 4,000 bushels of grain per hour, or an aggregate of 44,000 bushels per hour. Furthermore, the St. Lawrence Grain Company has one elevator with a transfer capacity of 7,000 bushels per hour. The storage capacity for flour equals 200,000 barrels. The freight paid to the lake vessel or river barge includes all costs and dues *en route*, and delivers the grain free on board of ocean craft in the harbour of Montreal, full delivery weight being guaranteed by the carriers; no tonnage nor harbour dues, towage nor pilotage dues, being chargeable on grain or other cargo of vessels; all such are payable by the vessel as a part of her current expenses, and are included in the freight charge paid to her. The export wharfage dues and port warden's fees on grain are merely nominal, and do not exceed 30 cents per 100 bushels. The facilities for handling grain at Kingston are provided for by five floating elevators, with a transfer capacity of 250,000 bushels per day of 12 working hours. The standard barge capacity for transporting the same from Kingston to Montreal is equal to 1,370,000 bushels. Therefore, in one trip downward, very nearly one million and a half of bushels of grain can be moved, and if it shall be computed that on an average each barge could make 13 trips on the average of 219½ days of navigation on the St. Lawrence River and the St. Lawrence canals,

there is shown a capacity for moving in a season over 19,000,000 bushels of grain. There are also storage and transfer elevators at Port Colborne and Port Dalhousie, at each end of the Welland Canal. There is also a railway on the line of the Welland Canal 28 miles long, which carries grain from Port Colborne to Port Dalhousie, elevating at both ends of its route at a charge of 1½ to 1¾ cents. per bushel. This railway is used for lightering vessels of a portion of their cargo, by which means a vessel can take on a cargo for any draught of water suited to her full loading capacity, passing it from Lake Erie to Lake Ontario, partly through the canal and partly over the Welland railway, reloading it at the terminus of the railway on Lake Ontario. (*E. H. Walker, Statistician, New York Produce Exchange.*)

## D.

### Improvement of the Navigation of the River St. Lawrence between Montreal and Quebec.

The River St. Lawrence, from the Gulf of St. Lawrence to the immediate vicinity of Quebec, is from 10 to 35 miles in width, is of great depth, and possesses every natural advantage for navigation by vessels of any size.

From Quebec to Montreal, a distance of 159 English miles, the river is generally from 1 to 2 miles in width, with a depth of 45 to 100 ft. for a distance of 45 miles above Quebec, and above that, except in shoal places subsequently mentioned, it is of a depth of about 30 to 50 feet. At about two thirds of the distance above Quebec the river widens out into the Lake St. Peter, which is 20 miles in length by 9 in width, and with a general depth of only 11 to 18 feet at lowest water.

The tide, which rises 14 ft. at Quebec, is gradually lost in ascending until it becomes imperceptible at the lower end of Lake St. Peter. The average current of the river between Montreal and Quebec may be taken at 2 miles per hour, and is nowhere such as to affect navigation.

From Montreal to Lake Ontario, a distance of 183 English miles, the lower 100 miles is broken by a series of rapids, around which is a system of canals with locks 200 ft. by 45 ft., with 9 ft. depth (now being enlarged to 270 by 45 by 14 ft.), enabling the vessels of the Great Lakes to descend and exchange cargoes with the sea-going vessels below.

The shoal places in the St. Lawrence between Quebec and Montreal, which formerly prevented large vessels from reaching the latter city, are the following :—

Lake St. Peter.—With the exception of the deeper channels of the river, which project into the extremities of the lake, and two long deep pools situated in the line followed by the greatest current, the bottom of Lake St. Peter may be considered as a great smooth shoal of soft clay overlaid at certain places with a layer of sand. The central portion, several square miles in

extent, called "The Flats," is perfectly level, with a depth of about 11 ft. of water at the lowest stage, and deepening to about 16 ft. or 18 ft. near the extremities of the lake, when it suddenly drops to 25 ft. or 30 ft. deep below water surface. The shortest distance between 20 ft. depths of water at the extremities is, in a straight line across the Flats, 14 English miles, and the aggregate breadth of the bars separating the pools is $11\frac{1}{2}$ miles.

At Lavaltrie, about 30 miles below Montreal, is a broad shoal of clay covered with boulders and gravel, $5\frac{1}{4}$ miles in length between the lines of 25 ft. water, and with only 11 ft. at the shallowest parts.

From Varennes to Cap St. Michel, a distance of 2 miles, there is a succession of shoals of clay and stones, covered with 16 ft. to 25 ft. of water.

At Pointe aux Trembles, 10 miles below Montreal, about 2 miles of a bottom of clay and boulders is covered with 18 ft. to 25 ft. of water

At Cap la Roche, 50 miles above Quebec, a shoal stretches across the river formed of shale rock overstrewn with large boulders, and having in summer a depth of 20 ft. to 25 ft. of water, according to the condition of the tide.

At Cap Charles, immediately below, is a similar shoal of rock, but only one third of a mile in width, and with 17 ft. to 24 ft. of water upon it.

At several other places there were shoals of smaller extent reaching wholly or partly across the main channel.

Operations for the removal of these formidable obstructions to deep draft navigation were first commenced in 1844, when the Government Board of Public Works placed two dredges in Lake St. Peter to cut a channel 150 ft. wide and 14 ft. deep at low water in a straight line through "The Flats." Work was continued with some interruptions for four summers, when it was suspended.

After a lapse of four years, or in 1851, operations were resumed, but under the charge of the Harbour Commissioners of Montreal, who adopted a route further to the north, following the deflections of the natural or "Old Channel," and taking advantage of the "pools" of deep water.

The dredging of the shoals near Lavaltrie and Varennes was commenced in the same year, and the work was carried on with such vigour and success that by the end of 1852 vessels drawing 15 ft., or 4 ft. more than formerly, could at the lowest stage of water reach Montreal.

In 1855 the plant was increased, and the work continued until 1866, when an aggregate length of about 31 miles of river had been dredged upon, and the whole ship channel between Montreal and Quebec had been made to at least 300 ft. in width and 20 ft. in depth at the lowest water. The total expenditure, including the purchase of plant, was up to that date $1,200,000.

In 1875 the deepening of the channel was again commenced with a view of making it first to 22 ft. and afterward continuing

it to 25 ft. deep, and by the end of the present year the former depth will have been attained.

The plant engaged in the work consists of eight dredges (with a single set of buckets on an endless chain, and having a daily capacity, varying with the material, from 150 cubic yards of shale rock to 3,000 cubic yards of soft clay); two boulder-grappling barges; eight tug boats, together with the necessary scows, coal tenders, &c., the whole costing about $580,000.

JOHN KENNEDY,
Chief Engineer.

[The submerged canal, in the bottom of Lake St. Peter, is 16½ miles in length, with bottom level 23 feet below low-water surface, 12 feet maximum depth of cutting, 300 feet wide, involving the removal of 5,620,805 cubic yards.]

## E.

### THE HARBOUR OF MONTREAL.

The city and harbour of Montreal are situated on the north side of the River St. Lawrence 986 miles from the Straits of Belleisle, immediately below the Lachine Rapids, or in other words at the head of navigation in that part of the river level with the sea, and the highest point to which the larger sea-going vessels can ascend to meet the vessels of the great inland lakes.

Up to 1825 the only wharves in existence were two on the shore between what is now the Custom House Square and the foot of the canal, having a total frontage of about 1,120 ft., and in water about 2 ft. deep at the lowest stage.

In 1825 (the year following the opening of the first Lachine Canal) the upper wharf was replaced by the "Canal wharf," which was extended to 1,260 ft. in length and placed in about 5 ft. water.

In 1830 the *Harbour Commissioners of Montreal* were constituted for the management of the harbour, and by them the construction of the first regular system of wharfage was undertaken.

Between 1830 and 1832 several of the present wharves, including the "Island wharf" and those immediately above and below it, were built of piles, with from 5 ft. to 20 ft. water in front of them. These replaced the remainder of the original shallow water wharves, and extended the wharfage to an aggregate frontage of 4,950 ft., or nearly a mile.

No further additions were made until 1840, but in that and the following two years extensions were made both above and below those of 1830 to 1832 and increasing the total frontage to 7,070 ft., or 1·55 miles.

The basins of the enlarged, or present, Lachine Canal, which was opened in the spring of 1848, supplied a considerable extent of wharfage; and, with the exception of the construction of two wharves with a frontage of 1,370 feet in 10 feet water in the

then lower part of the harbour, no further extensions were made in the harbour proper until 1856, which was shortly after the dredging operations in the river below were sufficiently advanced to allow of vessels reaching Montreal with a draft of 13 feet at low water instead of only 11 feet as before.

It was then also determined to continue the deepening of the ship channel to 20 feet, and a regular line of large steamers between Montreal and Liverpool having been already established, the necessity for deep water wharfage arose, and in 1856 the Hochelaga Wharf in 20 feet water was built at the lower limits of the city, and below the current St. Mary.

The deepening of the shallow upper parts of the harbour and the re-building of some of the old wharves to a greater depth was also undertaken about the same time.

The deepening and improvement of the central part of the harbour, and its extension upward and downward, have been regularly carried on to the present time as the deepening of the ship channel and the increase of trade demanded.

At the end of 1866, when vessels drawing 20 feet were first enabled to reach Montreal, the wharfage was of the following extent:—

| | Miles. |
|---|---|
| For 20 feet draft of water - - - | 1·39 |
| Under 20 feet „ - - - | 1·78 |
| Total - - | 3·17 |

At the present date the extent is as follows:—

| | Miles. |
|---|---|
| Wharfage for 24 feet draft of water - | 1·20 |
| „ 20 „ „ - | 2·15 |
| „ 10 to 20 feet draft of water - | 1·07 |
| Total - - | 4·42 |

As already stated, the earlier wharves were built of piles placed in a close row in front, and well secured and backed with earth and stone filling in rear, but since 1846 they have been exclusively built of crib-work strongly framed of pine and other suitable timber, and filled and backed with stone-ballast, or with ordinary dredgings from the harbour.

All the wharves are entirely submerged in winter, and owing doubtless to this the timber is of unusual durability. Some pile wharves of 1830, which are in deep water, and therefore did not need to be superseded, are still in use. The crib-work wharves are found to suffer no serious decay for about 15 or 20 years, and then only to a depth about half way between the top and the low water line.

The total capital expenditure in construction of the harbour is up to the present time about £2,000,000, the interest on which is met by dues levied upon the vessels and cargoes.

The following is the number and tonnage of sea-going and inland vessels which arrived in port in the past 10 years :—

| Year. | Sea-going Vessels. | | Inland Vessels. | |
|---|---|---|---|---|
| | No. | Tonnage. | No. | Tonnage. |
| 1868 - - | 478 | 198,759 | 5,822 | 746,927 |
| 1869 - - | 557 | 259,863 | 5,866 | 721,324 |
| 1870 - - | 680 | 316,846 | 6,345 | 819,476 |
| 1871 - - | 664 | 351,721 | 6,878 | 624,787 |
| 1872 - - | 727 | 398,800 | 7,150 | 936,782 |
| 1873 - - | 702 | 412,478 | 6,751 | 933,462 |
| 1874 - - | 731 | 423,423 | 6,855 | 956,837 |
| 1875 - - | 642 | 386,112 | 6,178 | 811,410 |
| 1876 - - | 602 | 391,180 | 6,083 | 786,083 |
| 1877 - - | 513 | 376,859 | 6,333 | 847,978 |

JOHN KENNEDY,
Chief Engineer.

## F.

STATEMENT SHOWING MILEAGE OF RAILWAYS IN OPERATION, CAPITAL, TOTAL FLOATING

| Name of Railway. | Mileage. | Ordinary Paid-up Share Capital. | Preference Paid-up Share Capital. | Bonded Debt Paid up. |
|---|---|---|---|---|
| | | $ | $ | $ |
| **DOMINION.** | | | | |
| Grand Trunk Railway | 1,388¼* | 53,403,668 65 | 61,869,200 56 | 20,476,379 12 |
| Atlantic and St. Lawrence | — | 5,000,000 00 | — | 3,484,000 00 |
| Buffalo and Lake Huron | — | — | 2,550,000 00 | 3,715,932 20 |
| Chicago, Detroit, and Canada | — | 1,074,736 33 | — | 1,095,000 00 |
| Intercolonial | 744 | — | — | — |
| Canadian Pacific Railway | 50 | — | — | — |
| **ONTARIO.** | | | | |
| Brockville and Ottawa—to Arnprior | 57 | 495,000 00 | Prefce. Extn. Debentrs. | 848,000 00 |
| Canada Central—Ottawa to Pembroke | 105 | 40,000 00 | — | 1,330,000 00 |
| Brantford, Norfolk, and Port Burwell | 34 | 30,000 | — | — |
| Canada Southern | 322½ | 100,000 | — | 11,107,189 39 |
| Cobourg, Peterboro', and Marmora | 31 | — | 600,000 | 400,000 00 |
| Great Western | 860¼ | 20,595,538 93 | 2,461,335 47 | 17,392,152 67 |
| London and Port Stanley | — in Great | — | — | — |
| Wellington, Grey, and Bruce. | — Western | 221,200 00 | — | 2,589,066 66 |
| London, Huron, and Bruce | — system. | 22,210 00 | — | — |
| Hamilton and North-western | 147 | 145,000 00 | — | — |
| Kingston and Pembroke | 60 | 106,000 00 | — | — |
| Midland | 133 | 834,114 99 | — | 2,237,172 56 |
| Northern | 167¼ | 425,000 00 | 21,184 00 | 4,192,633 00 |
| Port Dover and Lake Huron | 63 | 80,000 00 | — | 167,900 00 |
| St. Lawrence and Ottawa | 59 | — | 789,909 | 730,000 50 |
| Toronto and Nipissing | 88 | 193,350 00 | — | 769,000 00 |
| Toronto, Grey, and Bruce | 195 | 773,085 00 | — | 1,999,726 62 |
| Grand Junction | 20 | See Railways under Construction | | |
| Welland | 16½ | 798,712 03 | — | 957,273 33 |
| Whitby and Port Perry | 46 | 110,080 33 | — | 689,611 39 |
| Victoria | 33½ | See Railways under Construction | | |
| Stratford and Lake Huron | 20 | See Railways under Construction | | |
| **QUEBEC.** | | | | |
| Levis and Kennibec | 45 | 1,085,024 36 | — | 486,666 66 |
| Massawippi Valley | 34½ | 400,000 | — | 400,000 00 |
| Mississquoi and Black River Valley | 10 | — | — | — |
| Montreal and Vermont Junction | 23 | — | — | — |
| Montreal, Portland, and Boston | 32 | 974,800 00 | — | — |
| Quebec Central | 61 | 295,985 | — | — |
| Quebec and Lake St. John | 36½ | 112,210 | 10,000 00 | 100,000 00 |
| St. Lawrence and Industry | 12 | 42,100 | — | — |
| St. Francis, Megantic, and International. | 35½ | 650,000 | — | — |
| South Eastern | 65 | 833,251 | — | 894,000 00 |
| Quebec, Montreal, Ottawa, and Occidental. | 178 | Work assumed by Quebec Government. | | |
| Carillon and Grenville | 13½ | 94,000 | — | — |
| **PRINCE EDWARD ISLAND.** | | | | |
| Prince Edward Island Railway | 198 | — | — | — |
| **NOVA SCOTIA.** | | | | |
| Windsor and Annapolis Railway | 84 | 1,467,390 00 | — | 1,532,628 00 |
| **NEW BRUNSWICK.** | | | | |
| Albert | 51 | 642,000 00 | — | — |
| Chatham Branch | 9 | 50,000 00 | — | — |
| European and North American | 91½ | 550,000 00 | — | — |
| Fredericton | 23 | 321,100 00 | — | 100,000 00 |
| New Brunswick | 152 | 200,000 00 | — | 1,722,000 00 |
| New Brunswick and Canada | 120 | 1,178,000 00 | 610,000 00 | 170,000 00 |
| Petitcodiac and Elgin | 14 | 8,000 00 | — | — |
| Total mileage | 5 935¼ | 114,352,126 82 | 68,876,876 31 | 79,676,382 44 |
| Less mileage in United States | 228 | | | |
| Total Canadian mileage | 5,707¼ | | | |

Of this line 228 miles are

## F.

COST OF ROAD AND ROLLING STOCK, WITH GOVERNMENT AND MUNICIPAL AID, DEBT, &c.

| Rate of Interest. | Government Loans or Bonuses. Name of Government. | Loan. | Bonus. | Subscriptions to Shares or Bonds. | Paid-up. |
|---|---|---|---|---|---|
| | | $ | $ | $ | $ |
| — | Dominion | 15,142,633 33 | — | — | 15,142,633 33 |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| — | Dominion | — | 35,682,249 11 | — | 35,682,249 11 |
| — | — | — | — | — | — |
| 7 % | — | — | — | — | — |
| 6 % | Ontario | — | 125,000 00 | — | — |
| 5 % | Do. | — | 100,000 00 | — | 75,000 00 |
| 7 % | Do. | — | 147,858 65 | — | 147,858 65 |
| 8 % | Do. | — | 18,000 00 | — | 18,000 00 |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| 7 % | Ontario | — | 241,276 000 | — | 241,276 00 |
| 6 % | Do. | — | 178,630 00 | — | 178,630 00 |
| — | Do. | — | 405,500 | — | 67,000 00 |
| — | Do. | — | 117,342 | — | 115,274 50 |
| 6 % | Do. | — | 98,000 | — | 98,350 20 |
| 6 % | Do. | — | 196,000 00 | — | 196,188 00 |
| 7 & 8 % | Do. | — | 126,000 00 | — | 126,000 00 |
| 6 % | Do. | — | — | — | — |
| 7 % | Do. | — | 104,860 00 | — | 104,860 00 |
| 6 % | Do. | — | 375,282 00 | — | 377,938 |
| — | — | — | — | — | — |
| 6 % | Do. and Dominion | — | 2,656 00 | — | — |
| 6 % | Ontario | — | 94,957 59 | — | 94,957 59 |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| — | Quebec | — | 360,000 | — | 108,300 00 |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| — | Quebec | — | — | — | — |
| — | Do. | — | 85,000 00 | — | 14,000 00 |
| — | Do. | — | 382,000 | — | — |
| — | Do. | — | 600,000 00 | — | 48,171 00 |
| — | — | — | — | — | — |
| — | — | — | 128,506 | — | — |
| 6 % | Quebec | — | 443,000 00 | — | 166,350 00 |
| — | — | — | 4,867,000 00 | — | — |
| — | — | — | — | — | — |
| — | Dominion | — | 3,403,367 84 | — | 3,403,367 84 |
| 6 % | Do. | — | 1,089,896 00 | — | 1,089,896 00 |
| 6 % | New Brunswick | — | 455,000 00 | — | — |
| — | Do. | — | 32,000 00 | 24,000 00 | 32,000 00 |
| — | Do. | — | 880,000 00 | 300,000 00 | 1,180,000 00 |
| 6 % | Do. | — | 230,000 00 | — | 230,000 00 |
| — | Do. | — | 76,000 00 | — | 76,000 00 |
| 6 % | Do. | — | 575,000 00 | — | 575,000 00 |
| — | Do. | — | 70,000 00 | — | 70,000 00 |
| — | — | 15,142,633 33 | 51,700,444 37 | 324,000 0 | 9,650,300 30 |

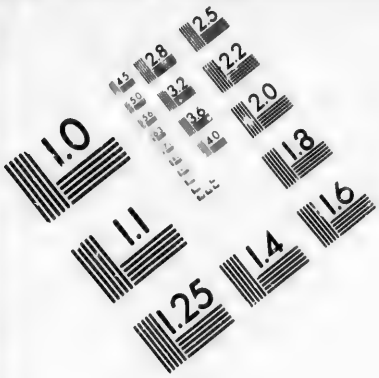
in the United States.

F.—Statement showing Mileage of Railways in Operation, Capital, Total Floating

| Name of Railway. | Municipal Loans or Bonuses. | | | |
|---|---|---|---|---|
| | Loan. | Bonus. | Subscription to Shares or Bonds. | Paid Up. |
| | | $ | $ | $ |
| **Dominion.** | | | | |
| Grand Trunk Railway | — | 82,500 00 | — | 82,500 00 |
| Atlantic and St. Lawrence | — | — | — | — |
| Buffalo and Lake Huron | — | — | — | — |
| Chicago, Detroit, and Canada | — | — | — | — |
| Intercolonial | — | — | — | — |
| Canadain Pacific Railway | — | — | — | — |
| **Ontario.** | | | | |
| Brockville and Ottawa—to Arnprior | — | — | — | — |
| Canada Central—Ottawa to Pembroke | — | 75,000 00 | 42,500 00 | — |
| Brantford, Norfolk, and Port Burwell | — | 200,000 | — | 140,000 00 |
| Canada Southern | — | 322,500 | — | 320,052 11 |
| Cobourg, Peterboro', and Marmora | — | — | 120,000 00 | 102,000 00 |
| Great Western | — | — | — | — |
| London and Port Stanley | — | — | — | — |
| Wellington, Grey, and Bruce | — | 682,000 00 | — | 682,000 00 |
| London, Huron, and Bruce | — | 311,500 00 | — | 307,494 20 |
| Hamilton and North-western | — | 719,000 00 | 100,000 00 | 165,000 00 |
| Kingston and Pembroke | — | 450,000 00 | — | 450,000 00 |
| Midland | — | 140,870 00 | — | 140,870 85 |
| Northern | — | 241,980 00 | 390,000 | 631,980 00 |
| Port Dover and Lake Huron | — | 200,408 00 | — | 198,043 78 |
| St. Lawrence and Ottawa | — | — | — | — |
| Toronto and Nipissing | — | 388,000 00 | — | 376,702 00 |
| Toronto, Grey, and Bruce | — | 988,000 | — | 969,561 44 |
| Grand Junction | — | — | — | — |
| Welland | — | — | — | — |
| Whitby and Port Perry | — | 222,094 93 | 10,000 | 222,094 93 |
| Victoria | — | — | — | — |
| Stratford and Lake Huron | — | — | — | — |
| **Quebec.** | | | | |
| Levis and Kennebec | — | — | 62,000 00 | 62,000 |
| Massawippi Valley | — | — | — | — |
| Mississquoi and Black River Valley | — | — | — | — |
| Montreal and Vermont Junction | — | — | — | — |
| Montreal, Portland, and Boston | — | 10,000 00 | — | 25,000 00 |
| Quebec Central | — | 250,000 00 | — | 100,000 00 |
| Quebec and Lake St. John | — | 7,000 00 | 100,000 00 | 10,000 00 |
| St. Lawrence and Industry | — | — | — | — |
| St. Francis, Megantic, and International. | — | — | — | — |
| South-Eastern | — | 6,000 00 | 578,000 00 | 438,000 00 |
| Quebec, Montreal, Ottawa, and Occidental. | — | 2,459,000 00 | — | — |
| Carillon and Grenville | — | — | — | — |
| **Prince Edward Island.** | | | | |
| Prince Edward Island Railway | — | — | — | — |
| **Nova Scotia.** | | | | |
| Windsor and Annapolis Railway | — | — | — | — |
| **New Brunswick.** | | | | |
| Albert | — | 70,000 00 | — | — |
| Chatham Branch | — | — | — | — |
| European and North American | — | — | 60,000 | 60,000 00 |
| Fredericktion | — | 80,000 00 | — | 80,000 00 |
| New Brunswick | — | 23,000 00 | — | 23,000 00 |
| New Brunswick and Canada | — | 47,500 00 | — | 47,500 00 |
| Petitcodiac and Elgin | — | 13,000 00 | — | 13,000 00 |
| | — | 7,914,853 78 | 1,477,500 00 | 5,689,299 31 |

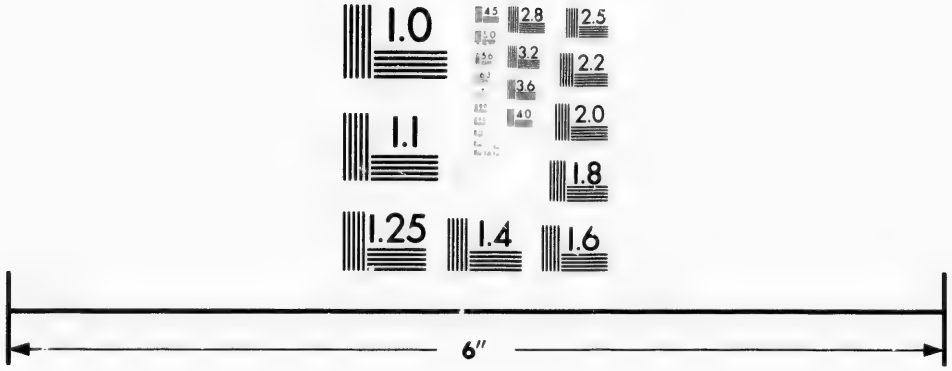
COST OF ROAD AND ROLLING STOCK, WITH GOVERNMENT AND MUNICIPAL AID, DEBT, &c.—*cont.*

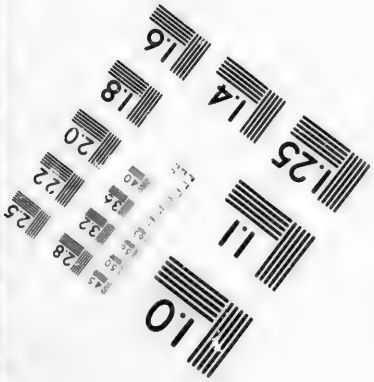
| Total Capital. | | Floating Debt. | | Total Cost of Railway and Rolling Stock. |
|---|---|---|---|---|
| ubscribed. | Paid Up. | Amount. | Rate of Interest. | |
| $ | $ | $ | | $ |
| 151,089,657 44 | 150,934,619 74 | 3,692,281 73 | — | 140,512,051 15 |
| — | 8,484,000 00 | — | — | 8,484,000 00 |
| — | 6,270,982 20 | — | — | 6,270,982 20 |
| — | 2,169,736 33 | — | — | 2,169,736 33 |
| — | 35,682,249 11 | — | — | 35,682,249 00 |
| — | — | — | — | — |
| — | 1,343,600 00 | 88,000 00 | — | 3,000,000 00 |
| — | 1,412,500 00 | 60,000 00 | — | 1,500,000 00 |
| 1,343,600 00 | 245,000 00 | 200,000 00 | — | 380,000 00 |
| 26,765,100 00 | 26,765,100 00 | 699,125 00 | — | 26,735,181 96 |
| 1,120,000 00 | 1,120,000 00 | 62,000 00 | 8 % | 1,400,042 00 |
| — | 46,449,027 07 | — | — | 38,309,362 42 |
| — | — | — | — | — |
| 3,733,542 66 | 3,733,542 66 | 158,693 00 | — | 3,280,526 08 |
| — | 508,334 28 | — | — | 1,401,841 37 |
| — | 377,000 00 | — | — | 850,570 57 |
| 673,342 50 | 671,274 50 | 46,000 00 | 8 % | 802,620 89 |
| — | 3,310,508 60 | 424,360 00 | — | 3,957,588 50 |
| — | 5,076,985 34 | 915,650 36 | — | — |
| 833,308 00 | 571,943 78 | 146,885 20 | — | 718,828 98 |
| 1,519,909 70 | 1,519,909 70 | 157,789 90 | — | 1,483,395 04 |
| — | 1,443,912 00 | 282,281 13 | — | 1,600,000 00 |
| — | 4,120,311 06 | 44,818 28 | — | 4,167,129 34 |
| — | — | — | — | — |
| — | 1,755,985 36 | — | — | 1,226,390 91 |
| — | 1,116,744 24 | 167,389 35 | — | 1,181,790 49 |
| — | — | — | — | — |
| — | — | — | — | — |
| — | 1,679,991 22 | — | — | — |
| — | 800,000 00 | — | — | 400,000 00 |
| — | — | — | — | — |
| — | — | — | — | — |
| 998,800 00 | 998,800 00 | — | — | — |
| 491,970 00 | 395,985 | — | — | 770,639 36 |
| 1,118,400 00 | 270,381 | — | — | 244,501 00 |
| 42,100 00 | 42,100 | — | — | 64,016 00 |
| — | 778,506 | 16,210 81 | — | — |
| 3,240,160 | 1,893,601 00 | — | — | 1,320,000 00 |
| — | 7,326,000 00 | — | — | — |
| 100,000 00 | 94,000 00 | 16,000 00 | 7 % | 110,000 00 |
| — | 3,403,367 84 | — | — | 3,403,367 84 |
| 4,089,624 00 | 4,089,624 00 | 198,341 00 | — | 3,799,989 00 |
| — | 642,000 00 | 600,000 00 | 6 % | 1,767,000 00 |
| 135,310 00 | 82,000 00 | — | — | 98,000 00 |
| 1,800,000 00 | 1,430,000 00 | — | — | — |
| 731,000 00 | 731,160 00 | — | — | — |
| — | 2,021,000 00 | — | — | — |
| — | 2,580,500 00 | 36,000 | 7 % | 3,506,000 00 |
| — | 91,000 00 | — | — | 83,000 00 |
| — | 334,433,482 00 | — | — | — |

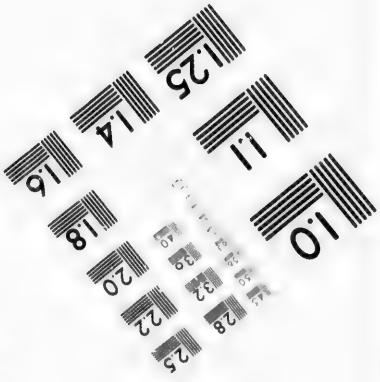




# IMAGE EVALUATION TEST TARGET (MT-3)

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WEBSTER, N.Y. 14580
(716) 872-4503

G.

STATEMENT OF MILEAGE OF CANADIAN RAILWAYS UNDER CONSTRUCTION OFFICIAL

| Name of Railway. | Mileage. | Ordinary paid up Share Capital. | Paid up Bonded Debt. | Rate of Interest. | Government Loan | |
|---|---|---|---|---|---|---|
| | | | | | Name of Government. | Loan. |
| **DOMINION.** | | $ | $ | | | $ |
| Canadian Pacific | — | — | — | — | — | — |
| Pembina Branch | 85 | — | — | — | Dominion | — |
| Georgian Bay Branch | 292 | — | — | — | | |
| **ONTARIO.** | | | | | | |
| Credit Valley | 152 | — | — | — | Ontario | — |
| Grand Junction | 45 | 45,000 00 | — | — | " | — |
| Hamilton and North-western. | 30 | — | — | — | — | — |
| Kingston and Pembroke | 28 | — | — | — | — | — |
| Stratford and Lake Huron | 7¾ | 154,800 00 | 202,000 00 | 6 % | Ontario | — |
| Montreal and Ottawa Junction. | 81¼ | — | — | — | " | — |
| Belleville and North Hastings. | 22 | — | — | — | — | — |
| North Simcoe | 33 | — | — | — | — | — |
| Victoria | 22 | — | — | — | — | — |
| Cobourg, Peterboro', and Marmora. | 13 | — | — | — | — | — |
| Midland | 14 | — | — | — | — | — |
| **QUEBEC.** | | | | | | |
| Montreal, Portland, and Boston. | 21 | 46,000 00 | — | — | Quebec | — |
| Levis and Kennebec | 45 | — | — | — | — | — |
| Quebec Central | 59 | — | — | — | — | — |
| Quebec, Montreal, Ottawa, and Occidental. | 144 | — | — | — | Quebec | — |
| Missisquoi and Black River Valley. | 46 | — | — | — | — | — |
| South-Eastern | 30 | — | — | — | — | — |
| Montreal and Vermont Junction. | 20 | — | — | — | — | — |
| **NEW BRUNSWICK.** | | | | | | |
| St. Martin's and Upham | 29¾ | 12,000 00 | — | — | New Brunswick | — |
| Grand Southern Railway | 82 | 1,224 00 | — | — | " | — |
| **NOVA SCOTIA.** | | | | | | |
| Halifax and Cape Breton Coal Railway Co. | 79½ | 161,000 00 | — | — | Nova Scotia | 631,627 00 |
| Nova Scotia, Nictou, and Atlantic Central. | 73 | 12,750 00 | — | — | " | — |
| Spring Hill and Parrsboro'. | 27 | 366,300 00 | — | — | " | — |
| Western Countries | 85 | 500,000 00 | — | — | " | — |
| Miles | 1,201½ | 1,299,874 00 | 202,000 00 | — | — | 631,627 00 |

In addition to the money subsidy, the Government of Nova Scotia has granted lands in aid of the railways as follows:

| | |
|---|---|
| Halifax and Cape Breton Coal Railway Company | 150,000 acres. |
| Nova Scotia, Nictou, and Atlantic Railroad | 150,000 " |
| Western Counties | 150,000 " |
| Spring Hill and Parrsboro' | 10,000 " |

## G.

WITH DETAILS OF CAPITAL, AND GOVERNMENT AND MUNICIPAL AID, &c.—FROM RETURNS.

| or Bonuses. | | Municipal Loans or Bonuses. | | | Total Capital. | | Floating Debts. |
|---|---|---|---|---|---|---|---|
| Bonus. | Subscription to Stock. | Loan. | Bonus. | Subscription to Stock. | Sub-scribed. | Paid up. | |
| $ | $ | $ | $ | $ | $ | $ | $ |
| — | 5,037,717 03 | — | — | — | — | 5,037,717 03 | — |
| — | 304,000 00 | — | 760,000 00 | — | — | — | — |
| — | 168,000 00 | — | 230,000 00 | — | — | 190,000 00 | — |
| — | — | — | — | — | — | — | —* |
| — | — | — | — | — | — | — | —* |
| — | 54,000 00 | — | 209,000 00 | — | — | 619,800 00 | 96,000 00 |
| — | 264,000 00 | 100,000 00 | 180,000 00 | 100,000 00 | — | 90,000 00 | — |
| — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — |
| — | 400,000 00 | — | 58,000 00 | — | — | 151,800 00 | — |
| — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | —* |
| — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — |
| — | 150,000 00 | — | — | — | — | 124,000 00 | — |
| — | 41,000 00 | — | 3,000 00 | — | — | 1,224 00 | — |
| 631,627 00 | — | — | — | — | — | 450,382 00 | — |
| — | 440,000 00 | — | — | — | 501,300 00 | 12,750 00 | — |
| — | 135,000 00 | — | — | — | — | 460,555 00 | — |
| — | 679,100 00 | — | 175,000 00 | 100,000 00 | — | 1,179,900 00 | — |
| 631,627 00 | 12,152,817 00 | 100,000 00 | 59,000 00 | 1,612,000 00 | 200,000 00 | — | 11,348,128 02 |

* See Statement of opened Railways.

## H.

### STATEMENT of Railways owned by various Coal Mining Companies.

| Name of Railway. | Mileage. | Gauge. | No. of Engines. | No. of Waggons. |
|---|---|---|---|---|
| *Nova Scotia.* | | | | |
| | | ′ ″ | | |
| Albion Mines - - - | 9 | 4 8½ | 5 | 404 |
| Intercolonial - - - - | 9¾ | 5 6 / 4 8½ | 3 | 93 |
| Nova Scotia Coal Co. - - | 6¼ | 5 6 | 2 | 78 |
| Vale Colliery - - - | 7¾ | 4 8½ | 2 | — |
| Acadia - - - - | 4 | 4 8½ | 1 | - |
| Spring Hill - - - - | 6 | 4 8½ | 1 | — |
| *Cape Breton.* | | | | |
| Campbellton - - - - | 2½ | 3 6 | 1 | 45 |
| Glace Bay - - - - | 1½ | 2 8½ | 1 | 134 |
| Glasgow and Cape Breton - - | 19 | 3 0 | 4 | — |
| Sydney and Louisburg - - | 21 | 3 0 | 1 | 204 |
| Gowrie - - - - | 1½ | 3 7½ | 3 | — |
| International - - - | 14 | 4 8½ | 1 | 80 |
| Lingan - - - - | 1 | 3 6 | 4 | 140 |
| Sydney - - - - | 4 | 4 8½ | — | 100 |
| Victoria - - - - | 4 | 4 8½ | — | 170 |
| | 68½ | — | — | - |

## I.

### Petroleum.

The utilizing of petroleum is of recent origin. The chemist has been able already to derive from crude petroleum seventy-four distinct products, including lamp black from the residuum, brilliant dyes of every hue and colour from coal tar, solid blocks of carbolic acid, aniline the basis of all dyes; light and heavy oil, naphthas, benzole, benzine, oil of misbane, vasoline, &c. One of its resolvents is used for creosoting timber, the process preserving it for an indefinite but long period. The oil of misbane is produced by turning nitric acid upon benzole, and the product in immense quantities is used for the manufacture of soap. It is a valuable aid in metal working; its use enabling the lathe worker in iron and steel to work with ease the hardest varieties.

It is utilized as an enricher of gas. It has been found by experiment that petroleum will yield seventy cubic feet of seventy candle gas per gallon, but this extreme result cannot always be obtained, the value of a cubic foot of gas being in continuous practical working, fifty-five to sixty cubic feet of seventy candle gas. A gallon of petroleum weighs about 6 and 6-10ths pounds, or 339 4-10ths gallons will equal one ton of oil, which at 15 cents per gallon would cost $50·85. One ton of oil of 2,240 lbs. would yield 23,757 cubic feet of gas, or 10 6-10 cubic feet per pound of oil, which would give for the candle feet of petroleum, $10\text{-}6 \times 70$ equal 742. One gallon of naphtha will yield sixty cubic feet of sixty candle gas and weighs about $5\frac{1}{2}$ lbs., or 406 3-10 gallons equals one ton of naphtha, which at 10 cents per gallon would cost $40·63. A ton of naphtha would, on this basis, yield $(2{,}240 \times 60)$, divided by $5\frac{1}{2}$ would give 24,436 cubic feet of gas, equal to 10 9-10 cubic feet per lb., and its candle feet would be $(10 \cdot 9 \times 60)$, equal to 654. The house-roofer has used the coal tar for roofing in the place of slate, asphaltum, &c., and the street paver with it makes the rough places smooth in the public streets, and in the thoroughfares in parks and pleasure-grounds. (The New York Produce Exchange Report, 1875-76.)

## K.

### Sources of Supply of Breadstuffs for Great Britain.

The following statement, compiled from official sources (English), shows the sources of annual supply of wheat and flour imported into Great Britain from 1860 to 1876, inclusive. For the last four years the weights of wheat and flour are aggregated; for the previous year flour is reduced to its equivalent of wheat.

| — | United States. | Russia. | Germany. | France. | Canada. | Other Countries. | Total. |
|---|---|---|---|---|---|---|---|
| | cwts. | cwts. | cwts. | cwts. | cwts. | cwts. | cwts. |
| 1860 - | 9,315,125 | 5,659,971 | 6,904,819 | 4,583,412 | 1,310,652 | 4,067,947 | 31,841,926 |
| 1861 - | 15,610,472 | 4,540,463 | 6,658,462 | 1,359,882 | 3,387,940 | 6,089,457 | 37,646,705 |
| 1862 - | 21,765,087 | 5,755,785 | 7,030,349 | 1,961,835 | 5,118,698 | 7,510,140 | 50,042,394 |
| 1863 - | 11,869,179 | 4,538,934 | 5,728,626 | 1,857,403 | 3,198,187 | 3,695,563 | 30,887,892 |
| 1864 - | 10,077,481 | 5,129,410 | 6,842,721 | 2,854,424 | 1,831,897 | 2,101,320 | 28,837,203 |
| 1865 - | 1,498,579 | 8,093,989 | 7,224,371 | 6,058,902 | 528,456 | 2,439,255 | 25,843,552 |
| 1866 - | 986,229 | 9,181,432 | 6,801,657 | 8,023,530 | 59,601 | 4,319,230 | 29,371,676 |
| 1867 - | 5,090,733 | 14,166,794 | 7,873,216 | 2,140,832 | 835,006 | 9,029,199 | 39,136,780 |
| 1868 - | 6,753,389 | 10,055,338 | 7,224,597 | 846,863 | 798,505 | 10,827,353 | 36,506,045 |
| 1869 - | 15,320,257 | 9,187,236 | 7,546,688 | 2,153,350 | 3,396,511 | 6,843,730 | 44,447,772 |
| 1870 - | 15,057,236 | 10,326,844 | 4,487,773 | 1,060,120 | 3,402,690 | 2,571,452 | 36,906,115 |
| 1871 - | 15,625,331 | 15,689,943 | 4,258,822 | 182,262 | 3,782,776 | 4,823,092 | 44,362,227 |
| 1872 - | 9,634,347 | 17,938,977 | 5,183,601 | 4,553,781 | 2,157,170 | 8,145,018 | 47,612,896 |
| 1873 - | 21,323,423 | 9,598,096 | 2,841,100 | 2,839,878 | 4,212,059 | 9,141,334 | 49,955,890 |
| 1874 - | 26,338,787 | 5,714,488 | 3,805,046 | 959,867 | 4,196,529 | 6,694,351 | 47,709,068 |
| 1875 - | 25,737,756 | 9,995,295 | 6,412,285 | 3,048,999 | 3,963,376 | 8,677,371 | 57,835,082 |
| 1876 - | 21,620,671 | 8,769,260 | 3,264,617 | 1,376,797 | 2,699,204 | 12,616,143 | 50,336,692 |

## L.

The following table of Imports of Canadian Barley into the United States shows that it goes westward as well as eastward, having no equal in quality in the U.S.

| At | During the years | | | |
|---|---|---|---|---|
| | 1877. | 1876. | 1875. | 1874. |
| | Bushels. | Bushels. | Bushels. | Bushels. |
| Chicago - - - | 112,829 | 141,667 | 272,616 | — |
| Milwaukee - - | 25,500 | 18,503 | 49,654 | 88,309 |
| Port Huron - - | 642,290 | 954,947 | 789,158 | 45,907 |
| Detroit - - - | 58,420 | 407,010 | 350,020 | 82,971 |
| Toledo - - - | 32,172 | 91,722 | 158,002 | 130,304 |
| Cleveland - - - | 150,740 | 166,095 | 426,870 | 155,036 |
| Erie - - - | 108,678 | 239,926 | 492,459 | 201,333 |
| Buffalo - - - | 911,152 | 1,402,332 | 1,021,384 | 567,876 |
| Suspension Bridge - | 663,512 | 845,812 | 646,919 | 620,171 |
| Charlotte - - - | 20,950 | 76,911 | 141,460 | 80,159 |
| Fair Haven - | 124,015 | — | — | — |
| Oswego - - - | 3,912,153 | 3,122,016 | 3,725,579 | 2,776,678 |
| Cape Vincent - - | — | 19,038 | 59,144 | 24,218 |
| Ogdensburg - - | 62,671 | 35,323 | 103,017 | 217,559 |
| Total bushels - - | 6,825,082 | 7,521,382 | 8,236,282 | 4,997,427 |
| Shipped eastward - - | 5,803,131 | 5,741,438 | 6,189,962 | 4,494,900 |
| Shipped westward - - | 1,021,951 | 1,779,944 | 2,046,320 | 592,527 |
| Total bushels - - | 6,825,082 | 7,521,382 | 8,136,282 | 5,087,427 |

# CATALOGUE.

# CANADIAN CATALOGUE.

## SYSTEM OF GENERAL CLASSIFICATION.

---

The Exhibits are in four different Sections of the Exposition—Canadian Court, Canadian Trophy, Agricultural Annexe, and the British Naval Department.

NOTE. — Abbreviations:—*O.* Ontario; *Q.* Quebec; *N. S.* Nova Scotia; *N. B.* New Brunswick; *B. C.* British Columbia; *P. E. I.* Prince Edward Island.

---

## FIRST GROUP.

### WORKS OF ART.

---

CLASS 2.—VARIOUS PAINTINGS AND DRAWINGS.

Miniatures, water-colour paintings, pastels, and drawings of every kind; paintings on enamel, earthenware, and porcelain; cartoons for stained glass windows and frescoes.

**Brown, Isaac, T. H.**; Artist; *Toronto, O.*

Crayon Portraits of Livingstone and Stanley, and three Water-colour Miniatures. The Portraits are executed entirely by hand, but the Miniatures are finished upon Photographs.

**Hope, Miss Constance**; *Prince Edward Island.*

Portrait of Michael Angelo, by himself.

**Huot, Charles E.**; *Quebec, Q.*

Paris address, Place Pigalle Passage de l'Élysée des Beaux Arts, 10. Two Drawings, Scenes in Canadian Life, "Légende de Josephine Lalande."

**Merritt, Miss**; *Toronto, O.*

Water-colour Painting.

**Merritt, Miss K. L.**; *Toronto, O.*

Painted China and Water-colour Painting. (*Trophy.*)

**Shaw, Jessica**; *Cobourg, O.*

Water-colour Painting, "Morning after the Storm," sketch from Nature in Canada, after a Snow Storm.

**Villiers, Mrs. Ellen**; *Toronto* (present address *Chateau de la Gentillerie, pres St. Servain, Ille et Vilaine*).

Paintings on China.

### Class 3.—Sculpture and Die Sinking.

Sculpture in high relief, bas-reliefs, chased and repoussé work. Medals, cameos, engraved stones, &c.

**Rolph, Smith & Co.**; *Toronto, O.*

Specimens of Die-sinking, Embossing, and Illuminating.

**Van Luppen, Wm.**; *Montreal, Q.*

Statuettes of Canadian Life, the Snow Shoe, and the Lacrosse.

### Class 4.—Architectural Drawing and Models.

Studies and details. Elevations and plans of buildings. Restorations based upon existing ruins or documents.

**Connolly, Jos.**; Architect; *Toronto, O.*

Front Elevation of R. C. Church in the town of Guelph, Ontario.

**Taché, Eugene E.**; *Department of Public Works, Quebec, Q.*

Architectural Drawings of the New Houses of Parliament; four different façades and elevations.

### Class 5.—Engravings and Lithographs.

Engravings, coloured engravings. Lithographs executed with pencil and with brush chromo-lithographs.

**Copp, Clark & Co.**; Lithographers, &c.; *Toronto, O.*

Specimens of Lithography (School Maps, &c.). The Maps and Globes exhibited by the Education Department, Ontario, were engraved and lithographed by this Firm.

**Rolph, Smith & Co.**; *Toronto, O.*

Specimens of Copper-plate Engraving and Lithography, plain and coloured.

# SECOND GROUP.

## EDUCATION AND INSTRUCTION, APPARATUS, AND PROCESSES OF THE LIBERAL ARTS.

### Class 6.—Education of Children, Primary Instruction, Instruction of Adults.

Plans and models of day nurseries (crèches), orphan asylums, infant schools and kinder-garten; system of management and furniture of such establishments; appliances for instruction suitable for the physical, moral, and intellectual training of the child previous to its entering school.

Plans and models of scholastic establishments for town and country; management and furniture for these establishments. Appliances for instruction: books, maps, apparatus, and models.

Plans and models of scholastic establishments for adult and professional instruction. System of management and furniture of these establishments. Appliances for adult and professional instruction.

Appliances for the elementary teaching of music, singing, foreign languages, book-keeping, political economy, practical agriculture and horticulture, technology, and drawing.

Appliances adapted to the instruction of the blind and of deaf mutes.

Works of pupils of both sexes.

Libraries and publications.

**Baillairgè, C.**; Honorary Member Society Generalization of Education in France; *Quebec.*

Stereometrical Tableau. A new system of measuring all bodies, Segments, Frusta, and Ungulae of these bodies, by one and the same rule. Consisting of a case containing 200 well-finished Hardwood Models of every Elementary, Geometrical or other form, each of which can be attached to the board, by means of a wire peg or nail. Awarded eleven Medals of Honour, and thirteen diplomas, &c. from France, Belgium, Italy, Russia, Japan, &c.

**Bennet Bros.**; *London, O.*

Single School Desk and Seat. Price $3.50. *See also* Class 17.

**Cartier, Pierre**; *Sorel, Q.*

Coloured Stenographic Map of the Dominion of Canada, with names written in Short-hand, after Duployes' system.

**Chanteloup, E.**; *Montreal, Q.*

School Desks.

**Canadian School Apparatus Manufacturing Company**; John P. May, Manager; *Toronto, O.*

This Company was awarded a Medal and Diploma at Philadelphia for the excellence and cheapness of their publications.

Chemical laboratories, cabinets for object lesson teaching, anatomical models, &c.

I. *Chemical Laboratories.*—No. 1. The Teacher's Laboratory. No. 2. Normal School Elementary Set of Chemicals and Chemical Apparatus. No. 3. The Student's Laboratory. No. 4. The Cabinet of Chemical Wonders; or Parlour Magic. No. 5 Teacher's Chemical Cabinet; to illustrate the experiments in Roscoe's Chemistry.

II. *Anatomical and Physiological Models.*—No. 6. Model of Human Head and Face. No. 7. Model of the Human Head. No. 8. Perpendicular View of Human Head. No. 9. Model of Human Trunk. No. 10. Model of the Thorax, 4 pieces. No. 11. Model of the Teeth and Section of Jaw. No. 12. Model of the Wrist-joint and Hand. No. 13. Model of the Ankle-joint and Foot. No. 14. Model of the Knee-joint. No. 15. Model of the Human Skin. No. 16. Skeleton of Horse. Nos. 17 and 18. Section of Horse.

III. *Object Lesson Teaching.*—19. Cabinet of the Vegetable Kingdom for Normal Schools, containing nearly two hundred different specimens systematically arranged to illustrate the principal families of Endogenous and Exogenous Plants. 20. Object Lesson Cabinet for Primary Schools, containing two hundred specimens of articles used for the purposes of food, clothing, &c. No. 21. The Home and School Electric Telegraph.

**Carter, J. B.**; *Toronto, O.*

Portable Black Board with slate surface; Combination Double School Desk for Primary Schools. Price $3.50.

**Copp, Clark & Co.**; Wholesale Booksellers and Publishers; *Toronto, O.*

Collection of School Books:—Grammar, Arithmetic, Natural Science, Copy Books, and Drawing Books.

**Cruikshank, A. Scott**; *Central School, Hamilton, O.*; Maps of Europe, Asia, Africa, Oceanica, British Isles, Italy, Ontario. Drawn and coloured by the pupils.

**Education Department, Ontario**; Hon. Adam Crooks, Q.C., Minister of Education; *Toronto, O.*

Specimens of Maps, Globes, School Apparatus, Object Lessons, School Books, Library and Prize Books, Models and Photographs of School Houses, Reports, Forms, &c. &c. from the Educational Depository, Toronto. This Exhibit is represented by Dr. S. P. May, Superintendent of Depositories, who is also Secretary of the Canadian Commission.

The Education Department of Ontario is entrusted with the control of the Public and High Schools of the Province. The Department is composed of a Committee of the Executive Council of the Province, presided over by one of their number as Minister of Education.

The Schools under the administration of the Department comprise (1) Public (or Elementary) Schools; (2) Separate (or Denominational) Schools; and (3) High (or Secondary) Schools.

The total expenditure for Public Schools in Ontario in 1876 was as follows:—

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|---|---|
| Teachers' salaries - - - | $1,838,321 |
| Maps, globes, apparatus, prize and library books, &c. - - - | 49,082 |
| Repairs and rent of school houses - | 150,745 |
| School sites and buildings - - | 630,265 |
| School books, stationery, and incidental expenses. - - - | 338,041 |
| Total expended for Public Schools - | $3,006,456 |

The expenditure for High Schools in Ontario in 1876 was as follows:—

| | |
|---|---|
| Salaries of teachers - - - | $195,906 |
| Building, rent, and repairs - - | 46,216 |
| Maps, library and prize books, &c. - | 62,825 |
| Total expended for High Schools - | $304,947 |

The *Educational Depository* from which the specimens are sent is established for the supply of maps, globes, apparatus, library and prize books, &c., which, through the liberality of the Legislature of Ontario, are supplied at about half the cost price.

The maps, globes, and principal part of the apparatus are manufactured in Toronto under the direction of the Education Department.

The large sum of four hundred and fifty thousand dollars was expended in 1876 for maps, globes, apparatus prize and library books, and text books for use in the High and Public Schools in Ontario.

### *List of Articles Exhibited.*

CLASS I.—Educational Reports, historical and statistical, of the Ontario School system; School Laws regulating the High and Public Schools, also the Protestant and Roman Catholic separate schools, with general regulations for their organisation, government, and discipline; School law lectures; Journal of Education for Ontario, from 1848 to 1875; Canada Educational Directory; Printed forms on Public School Meetings, Arbitrations and Awards, Certificates, Bonds, and Contracts; General Instructions to Trustees; Special Report for the Paris Exhibition on the Ontario Educational Institutions, &c.

CLASS II.—Collection of large Photographs of some of the Public and High Schools, Colleges, and Universities in Ontario, selected for the purpose of showing the style of Architecture adapted to the country, also large models of a Primary School and Collegiate Institute.—Ryerson Public School, Toronto; Wellesley Street Public School, Toronto; St. George's Ward Primary School, Ottawa; Central School, Ottawa; Central School, Goderich; Public School, Port Hope; Public School, Hamilton; Public School, Mitchell; High and Public School, Napanee; High School, Port Perry; High School, Goderich; High School, Port Hope; High School, Belleville; Collegiate Institute, Brantford; Collegiate Institute, Peterborough. (High Schools which have at least four masters, and an average of 60 Classical pupils are called Collegiate Institutes).

The Education Department, Toronto, showing the Normal and Model School, Grounds, &c. The Provincial Normal School, Ottawa. Other Educational Institutions not under control of the Education Department: University College, Toronto. The University of Toronto was established by Royal Charter, in 1827, and was endowed with a grant of lands set apart by the Crown in 1798. University of Trinity College, Toronto (Church of England), obtained Royal Charter in 1852; Victoria Methodist University, Cobourg, obtained Royal Charter in 1836; Knox College, established in 1844 by the Free Presbyterian Church for the training of Theological Students; Trinity College School, Port Hope; Wesleyan Female College, Hamilton, established in 1871, capacity for 150 boarders; Brookhurst Ladies College, Cobourg; De la Salle Roman Catholic Institute, Toronto.

CLASS III.—*School Method and Organisation.*—Entrance Examination Papers for High Schools, Collegiate Institutes and Normal Schools; Provincial and County Certificates; General Register of School Attendance, Daily Register and High School Register; General Limit Table of Studies in the Public Schools; Order and Classification of Studies for the Public Schools; Time Table, with hours of attendance and occupation of School time; Blank Weekly Report of Standing of pupils in Public Schools; Public School Pupils' Monthly Summary; Honour Rolls for High and Public Schools, with blank spaces for names; Certificates for good conduct, diligence, &c.; single merit cards, ten merit cards, fifty merit cards, and hundred merit cards.

CLASS IV.—*Text Books.*—Reading Books, Grammars, Arithmetics, Algebras, Euclid's Elements of Geometry, Geographies. Histories, various branches of Physical Science, Moral Science, Christian Morals, Vocal Music, Writing Copy Books, Drawing Books, &c. &c.

CLASS V.—*Specimens of Teachers Professional Library*, viz.: —Science of Education, Practical Education, Theory and Practice of Education, Home and Early Education, Kindergarten and Object Teaching, the Sciences, Teachers' Aids in Teaching, Physical Education, Educational Biography and Sketches, Miscellaneous Education, School House Architecture, Self-Education and Personal Help for young men, Aids to Female Teaching and Education, School Life Illustrated, English Language and Philosophy, Speaking and Elocution.

CLASS VI.—*Library and Prize Books*, embracing the following departments:— History, Voyages, Biography, Zoology and Ethnology, Physiology, Botany, Agriculture, Chemistry, Geology, Natural Phenomena, Natural Philosophy, Arts and Manufactures, Practical Life, Religious and Moral Tales, Essays, &c.

CLASS VII.—Tablet Reading Lessons, Scripture Prophetic Sites, Manners and Customs, &c. Mottoes for hanging on the wall, Copy Books, &c.

CLASS VIII.—*Arithmetic and Geometry.*—Numeral Frames different sizes, Brown's Geometrical Chart, illustrating Euclid's Elements, Books I. to VI. Geometrical Forms and Solids, Conic Sections, &c.

CLASS IX.—*Drawing.*—Drawing Books, Plaster Models of Leaves, Fruit, Hands, Feet, &c. from Nature.

CLASS X.—*Maps, Charts, &c.*—Ancient and Modern Maps, Raised Maps, Philosophical Diagrams, &c.

CLASS XI.—*Natural History.*—The Education Department of Ontario fosters and encourages the formation of museums in public schools, and supplies from its depository specimens illustrating Geology, Botany, Zoology, &c. This class is represented by a typical collection of stuffed Mammalia, Birds, Reptiles and Fishes, Zoological Charts, Natural History Object Lessons, Anatomical and Physiological Models and Charts; Botanical Plates; and Object Lesson Cabinets to illustrate the Vegetable Kingdom, &c.

CLASS XII.—*Globes and Astronomical Apparatus.*—Terrestrial and Celestial Globes from 2½ to 18 inches in diameter; Blackboard Globes, Solar Telluric Globe, Celestial Sphere, Planetarium, Brass-geared Tellurian, Heliotellus, Lunatellus, Turnbull's Helioconcentric Expositor of Terrestrial Motion, &c.

CLASS XIII.—*School Apparatus.—Pneumatics:* Public School Air Pump, with 8-inch plate; Air Pump, with 7-inch plate; Guinea and Feather Apparatus; Fountain in Vacuo, Magdeburg Hemispheres; Apparatus to illustrate elasticity of Air; Apparatus to illustrate weight of Air; models of Pumps; Exhausting and Condensing Syringes, &c. *Optics:* Binocular Microscope with moveable diaphragm, fine adjustment, and two sets of eye-pieces; Magic Lantern Slides; Camera Obscura, &c. *Heat:* Fire Syringe to show the production of fire by compression of Air; Ingenhouz's Apparatus for showing the different conducting power of Metals; Gravesande's Pyrometer Gauge and Bar for expansion of Metals. *Electricity:* Winter's Plate Electrical Machine; Rumsden's Electrical Machine; Gold Leaf Electroscope, Electrical Bucket, Thunder House, Electrical Orrery, Diamond or Luminous Jar, Sparkling or Luminous Plate, Insulating Stool, Electric Egg. *Voltaic Electricity, Magnetism, &c.:* Grove's Battery, Smee's Battery, Daniell's Battery, Decomposition of Water Apparatus, Model of Electric Telegraph, Home and School Telegraph; Electro Magnetic Bell, Galvanometers, Revolving Armatures, &c. *Mechanics, &c.:* Mechanical Powers, Collision Balls, Model of Screw, Model of Lock, Centrifugal Machine, &c. *Hydrostatics and Hydraulics:* Equilibrium Tubes, Under and Overshot Wheels, &c. *Chemistry:* Chemical Laboratories and Apparatus.

**Education Department, Quebec**; Hon. G. Ouimet, D.C.L., Superintendent of Public Instruction; *Quebec.*

This exhibit, represented by Mr. Archambault, Principal of the Commercial Academy, Montreal, is fully described in a special catalogue of 95 pages, which can be had on application. It consists of the work of pupils under the system adopted by the Department of Education in the province of Quebec. The following extract from a circular dated 10th December 1877, addressed to the local authorities, will show that the exhibit is only intended to represent the regular daily work of the pupils:—"There are two ways of organizing "an exhibition: the first consists in holding up to the ad- "miration of the public exceptional productions of pupils; "the second consists in exhibiting a whole collection of work "instead of one piece of work. The latter method the Com- "mission believes to be preferable. We do not wish to send

" to Paris selected work, and thus mislead persons to imagine " that we have rare talents in our schools, but prefer showing " that our system is good in its integrity from the university " to the public school. To this end our system must be " shown as it is, and as it works daily, exhibiting the work " of the professors and the daily tasks of the pupils. With " this view the Commission proposes to establish in all the " schools, and in all the higher educational institutions, a general competition, which will begin as soon as possible, " and end at the latest by the 15th of next February." It may be remarked that the work exhibited was collected within the space of two months without previous preparation. The greater part of the schools have sent the work of only a week or a fortnight.

*List of Exhibits.*

1. Two Albums containing Photographs of the principal Educational Establishments:—Universities, Colleges, Convents, Academies, Asylum, &c. in the province of Quebec.

2. The ordinary class work of pupils from the following colleges:—College of L'Assumption, L'Assumption; the Seminary of Sainte Therese de Blainville, Terrebonne; Bourget's College, Rigaud, Vaudreuil; College of Levis, Levis; College of Sherbrooke, Sherbrooke; College of the Sacred Heart, Sorel, Richelieu; Seminary of Chicoutimi, Chicoutimi.

*Institutions under the control of the Brothers of the Congregation of the Holy Cross.*—College Saint Laurent, Jacques Cartier; College of Saint Cesaire, Rouville.

*Schools under the control of the Christian Brothers.*—Commercial Academy of Quebec; the School of Saint Roch, Saint Patrick's School, and Saint Saveur School, Quebec; College of Sainte Marie, Beauce; Academy of Montmagny, Montmagny; Saint John's School, Quebec; Saint Ursule School, Three Rivers; Academy of Yamachiche, St. Maurice; St. John's Academy, Saint John; Academy of Beauharnois, Beauharnois; College of Saint Joseph, Chambly; Commercial College of Longueuil, Chambly; College of Lachine, Jacques Cartier; Saint Henry School, Hochelaga; Saint Lawrence School, Saint James School, Saint Joseph's School, Saint Bridget's School, Saint Ann's School, Saint Patrick's School, and the Bishop's Academy, Montreal; College of L'Islet, L'Islet.

*Convents and Schools under the control of the Sisters of Charity, Montreal.*—Saint James Model School; Saint Alexis School for Orphans; Saint Vincent de Paul Infant School; Convent of Coteau Saint Louis; Convent of Long Point; Convent of Saint Vincent de Paul, Isle Jésus, Laval; Convent of Saint Paul, Joliette; Convent of Saint Elizabeth, Joliette; Convent of Lanoraie, Berthier; Convent of Saint Ursule, Maskinonge.

*Sisters of Charity, Quebec.*—Convent of the Sisters of Charity, Bonaventure.

*Convents under the control of the Sisters of the Good Shepherd, Quebec.*—Convent of Chateau-Richer, Montmorency; Convent of St. Sylvestre, Lotbiniere; Convent of the N. D. des Laurentides, Quebec; Convent of Lotbiniere; Convent of Champlain, Champlain; Convent of Chicoutimi, Chicoutimi; Convent of Fraserville, Temiscouata.

*Convents under the control of the Sisters of the Holy Cross.*—Convent of Our Lady of Angels, St. Lament, Jacques Cartier; Convent of Montreal; Convent of St. Martin, Laval; Convent of St. Liguori, Montcalm; Convent of Sainte Rose, Laval.

*Convents under the control of the Sisters of Jesus Marie.*—Academy of Jesus Marie, Sillery, Quebec; Convent of Saint Joseph de Levis; Catholic Institution for Instruction of the Deaf and Dumb (males), Mile End, Montreal; female ditto, St. Denis Street, Montreal; Catholic Institution for the Blind, Nazareth Asylum, Montreal.

*Schools of Art and Design under the control of the Board of Arts and Manufactures, Montreal.*—Jacques Cartier, Normal School.

*School under the control of the Catholic Commissioners of the City of Montreal.*—Polytechnic School of Montreal; Catholic Commercial Academy of Montreal; St. Mary's Academy; St. Vincent's Academy; St. Patrick's Academy; St. Antoine Academy; St. Denis' Academy; Miss O'Keeffe's Academy; Miss P. Thibodeau's School; The Misses Thibodeau's School; Miss Blanchard's School; Miss M. Pare's School; Miss Marchand's Academy.

*Other Educational Institutions in the Province of Quebec.*—Sherbrooke Academy, Sherbrooke; Huntingdon Academy; Bartnon Academy, Pontiac; Bedford Academy, Missisquoi; St. Jean Baptiste Academy, Hochelaga; College of Salaberry; St. Timothee, Beauharnois; Missisquoi High School, Sweetsburg, Missisquoi; Academy of Sainte Anne de Lapocatiere, Kamouraska; Academy of Notre Dame de Levis, Levis; Academy of Laprairie, Laprairie; School of Saint Valier, Bellechasse; School of Maria, Bonaventure; School of Saint Hubert, Chambly; School of Saint Scholastique, Two Mountains School of Lachine, Jacques Cartier; School of Riviere Ouelle, Kamouraska; School of St. Denis, Kamouraska; School of Saint Paschal; School of Saint Joseph de Levis, Levis; School of Saint Agathe, Lotbiniere; School of Sainte Julie, Megantic; School of Sainte Anastasie, Megantic; School of Sainte Famille, Montmorency; Chelsea School, Ottawa; School de Omyerstad (Perkin's mills), Ottawa; School du Portage-du-Fort, Pontiac; School de Saint Jean Baptiste des Ecureuils; School de Saint Jean Baptiste de L'Isle Verte; School de Beloeil, Vercheres; School de Sainte Genevieve de Batiscan, Champlain; Maria School, Bonaventure; School of New Richmond; Co. School No. 1, S. W. Gaspe School; Port Daniel School, Bonaventure; Hope School, Bonaventure; Saint Augustin School, Two Mountains; St. Eustache School, No. 2, Two Mountains; Hochelaga School, Hochelaga; Riviere Ouelle Schools, Nos. 3, 5, 6, Kamouraska; Two Schools of Sainte Anne de la Pocatiere, Kamouraska; School of Saint Paschal, Kamouraska; Saint Constant School, No. 2, School of La Prairie, Nos. 7, 8, La Prairie; L'Assomption School; L'Epiphanie School; School of Saint Paul l'Ermite; School of Saint Roch de L'Achigan, L'Assomption; Bristol School, No. 1; Clarendon School, No. 1, Pontiac; Saint Janvier School, Piedmont; Saint Sauveur School, Saint Hypolite School, No. 1, Sainte Therese School, Terrebonne; Sainte Julie School, Megantic; Sainte

Petronille School, Montmorency; Saint Joseph School, No. 2, Two Mountains; School of New Port Gaspe; Charlesbourg School, Quebec; Vaudreuil School, Vaudreuil. Collection of books used in the schools, and Canadian publications. Hon. Mr. Chaveau, Quebec.

**Hodgins, J. G., LL.D.**; Deputy Minister of Education for Ontario; *Toronto*, O.

1. Exterior Model of Public School, constructed on architectural principles, to enable builders to estimate the cost of erection, &c. 2. Interior Model of ditto, with separate entrances for boys and girls. This model is fitted up with all the modern appliances; desks with folding seats, teacher's desk, black-board, &c. 3. The School House: its architecture, external and internal arrangements, with elevations and plans for Public and High School Buildings, together with illustrated papers on the importance of School Hygiene and Ventilation. *See also* Class VI.

**Langelier, Ls.**; *Quebec.*

Combined Apparatus for Reading, Apparatus, Maps, Charts, &c.

**Loverin, Nelson, M.D.**; *Montreal, Q.*

The Centograph consists of a stand with drawer for the reception of Symbols, and frame divided into 100 squares, each representing one year, which are again subdivided into compartments for the reception of Symbols of nine each. Loverin's Historical Centograph and Slate Calculations are impressed upon the mind, through the vision, and a knowledge of facts in the orderly manner of their presentation in history.

**Marling, Alex., LL.B.**; Secretary of the Education Department, Ontario; *Toronto, O.*

The Canada Educational Directory and Year Book, containing an account of the Elementary, Normal, and Secondary Schools, and the Universities, Colleges, &c., &c.

**Miller, Adam, & Co.**, Publishers and Booksellers; *Toronto, O.*

Text Books:—Reading, Grammar, Arithmetic, Natural Philosophy, Composition, Copy Books, Penmanship, and Specimens of the Canada School Journal.

**Moubis, Rev. J. H.**; *Mildmay, Carrick, O.*

Synoptical View of the World's History from the Creation to the Paris Exposition, 1878.

**Merritt, J. P.**; *St. Catherines, O.*

Chronological Charts, &c.:—1. Historical Tree, or, History of British North America. 2. Design for a Universal Chronographer. 3. Metric Table of Weights and Measures.

**Montpetit, M.**; *Quebec.*

Two Series of Reading Books.

**Novelty Works**; James Smart; *Brockville, O.*

Combined School Desk with two Seats. Price, 3.75. *See* Class 17.

**Potter, Charles**; *Toronto, O.*

Double School Desk with two separate folding Seats. Price $5.50. *See also* Classes 15 and 65.

**Protestant Board of School Commissioners**; *Montreal.*

Chart showing Protestant public system of instruction in Montreal. Pupils' work (boys and girls) :—Exercises in Dictation, Arithmetic, Writing, &c. Each book has an explanation of the length of time allotted to the pupils, age, and number of pupils examined, also the average work correctly done. The errors are underlined in red ink by the teachers. Photographs of the Protestant Schools of Montreal.

**Rolland & Sons**; Booksellers; *Montreal, Q.*

Collection of School Books in French, and Map of Canada.

**Sadlier & Co.**; *Montreal, Q.*

School Books.

**Warwick, W.**; Publisher and Bookseller; *Toronto, O.*

Reading Books :—Grammars, Arithmetics, Dictionaries, &c.

## CLASS 7.—ORGANISATION AND APPLIANCES FOR SECONDARY INSTRUCTION.

Plans and models of establishments for secondary instruction, lyceums, grammar schools, colleges, industrial and commercial schools. Arrangement and furniture of such establishments.

Collections, classical works, maps, and globes.

Appliances for technological and scientific instruction, and for teaching the fine arts, drawing, music, and singing.

Apparatus and methods for instruction in gymnastics, fencing, and military exercises.

**Hodgins, Dr. J. G.**; Deputy Minister of Education; *Toronto, O.*

Model of Collegiate Institute, constructed to a regular scale, so that contractors may estimate cost of erecting similar buildings. *See also* Class VI.

**May, Dr. S. P.**; Education Department; *Toronto, O.*

Typical Collection of Zoological Specimens, arranged to simplify the Instruction of Natural History in Schools. A Medal and Diploma was awarded the Exhibitor for a similar collection at the Philadelphia Exhibition.

**Protestant Board of School Commissioners**; *Montreal, Q.*

Plans and Photographs of High Schools.

**Education Department**; *Toronto, O.*; Hon. Adam Crooks, Minister of Education for Ontario.

Photographs of High Schools and Collegiate Institutes; also School Laws, Reports, &c. *See* Class VI.

**Education Department**; Hon. G. Ouimet; *Quebec.*

Pupils' work, &c. *See* Class 6.

## Class 8.—Organisation, Methods, and Appliances for Superior Instruction.

Plans and models of academies, universities, medical schools, practical schools, technical and practical schools, schools of agriculture, observatories, scientific museums, amphitheatres, lecture-rooms, laboratories for instruction and research.

Furniture and arrangement of such establishments.

**Commissioner of Agriculture, Ontario**; Hon. S. C. Wood; *Toronto, O.*

Reports on the Ontario School of Agriculture at Guelph.

**Education Department**; *Toronto, O.*; Hon. Adam Crooks, Q.C., Minister of Education for Ontario.

Photographs of Universities, &c. *See* Class VI.

**Education Department, Quebec**; Hon. G. Ouimet; *Quebec.*

Universities, &c. *See* Class 6.

**Macoun, Prof.**; *Belleville, O.*

Flora Canadensis. A collection of 2,769 species, arranged in their natural orders.

**Protestant Board of School Commissioners**; *Montreal, Q.*

Charts showing the subjects, number of professors and lecturers, and the number of students in attendance at McGill College, McGill College Calendars, also a series of Photographs, being exterior and interior views of McGill University, including Philosophical Apparatus, Specimens of Geology, &c.

**Smith, A., V. S.**; Principal of the Veterinary College; *Toronto, O.*

Reports, &c. on the Ontario Veterinary College.

## Class 9.—Printing, Books.

Specimens of typography; autographic proofs; lithographic proofs, black or coloured; proofs of engravings.

New books and new editions of books already known; collections of works forming special libraries; periodical publications. Drawings, atlases, and albums.

**Commissioner of Agriculture**; *Ontario*; Hon. S. C. Wood; *Toronto, O.*

1. Printed Reports of the Commissioner of Agriculture and Arts for the Province of Ontario with Statistics. 2. Report of the Products and Manufactures of Ontario at the International Exhibition, Philadelphia, 1876.

**Commissioner of Crown Lands**; *Ontario*; Hon. T. B. Pardee; *Toronto, O.*

Printed Reports of the Commissioner of Crown Lands for the Province of Ontario, with Maps and Plans.

**Copp, Clark & Co.**; Wholesale Booksellers and Publishers; *Toronto, O.*

Books on General Literature.

**Canadian Commissioners.**

**Newspapers published in the Dominion of Canada.**

*Province of Ontario.*

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|---|---|
| Advertizer | Owen Sound. |
| Advertizer | L'Original. |
| Advertizer | London. |
| Advertizer | Orangeville. |
| Advertizer | Petrolia. |
| Advertizer | Toronto. |
| Addington Reporter. | Newburg. |
| Advance | Wingham. |
| Advocate | Cookstown. |
| Advocate | Mitchell. |
| Advocate | Paisley. |
| Age | Strathroy. |
| Algoma Pioneer. | Sault Ste. Marie. |
| Argus | St. Mary's. |
| Alert | Stouffville. |
| Banner | Aurora. |
| Banner | Chatham. |
| Banner | Listowell. |
| Beacon | Stratford. |
| Beaver | Napanee. |
| British Canadian. | Simcoe. |
| British Whig | Kingston. |
| Bruce Reporter | Kincardine. |
| Bruce Review | Kincardine. |
| Bulletin | Collingwood. |
| Belford's Magazine. | Toronto. |
| Bauern Freund | Waterloo. |
| Berliner Journal | Berlin. |
| Beaverton Bee | Beaverton. |
| Canada Casket | Napanee. |
| Canada Christian Advocate. | Hamilton. |
| Canadian Baptist. | Toronto. |
| Canadian Champion. | Milton. |
| Canadian Monthly. | Toronto. |
| Canadian Post | Lindsay. |
| Canadian Statesman. | Bowmanville. |
| Canadian Times. | Arnprior. |
| Canadian Weekly. | Sarnia. |
| Christian Guardian. | Toronto. |
| Chronicle | Durham. |
| Chronicle | Ingersoll. |
| Chronicle | Waterloo. |
| Chronicle | Whitby. |
| Citizen | Ottawa. |
| Confederate | Mount Forest. |
| Courier | Brantford. |
| Courier | Perth. |
| Courier | Trenton. |
| Courier | Morrisburgh. |
| Craftsman | Hamilton. |
| Canadian Granger. | London. |
| Canadian Law Journal. | Toronto. |
| Canadian School Journal. | Toronto. |
| Canada Presbyterian. | Toronto. |
| Canadisches Volksblatt. | New Hamburgh. |
| Central Canadian. | Carleton Place. |
| Conservative | Brampton. |
| Dominion Churchman. | Toronto. |
| Dominion Watchman. | Hamilton. |
| Dumfries Reformer. | Galt. |
| Dundas County Herald. | Morrisburgh. |
| Day-book | Fort William. |
| Echo | Amherstburg. |
| Economist | Markham. |
| Ensign | Brighton. |
| Enterprize | Arthur. |
| Enterprize | Collingwood. |
| Era | Newmarket. |
| Essex Record | Windsor. |
| Examiner | Mount Forest. |
| Examiner | Peterborough. |
| Examiner | Barrie. |
| Express | Colborne. |
| Express | Forest. |
| Express | Napanee. |
| Express | Oakville. |
| Expositor | Brantford. |
| Expositor | Orillia. |
| Expositor | Perth. |
| Evangelical Churchman. | Toronto. |

East Lambton Advocate. Arkona.
Farmers' Advocate. London.
Forest Adviser Forest.
Free Grant Gazette. Bracebridge.
Freeholder - Cornwall.
Free Press - Acton.
Free Press - London.
Free Press - Ottawa.
Free Press - Port Elgin.
Free Press - Shelburne.
Gazette - - Almonte.
Gazette - - Barrie.
Gazette - - Dunnville.
Gazette - - Fenelon Falls.
Gazette - - Parkhill.
Gazette - - Picton.
Gazette - - Whitby.
Globe - - Toronto.
Grand River Sachem. Caledonia.
Grip - - Toronto.
Guardian - Uxbridge.
Guide - - Port Hope.
Guide - - Dundalk.
Haldimand Advocate. Cayuga.
Halton News - Milton.
Herald - - Carleton Place.
Herald - - Guelph.
Herald and Prototype. London.
Herald - - Ottawa.
Herald - - Georgetown.
Herald - - Stratford.
Home Journal St. Thomas.
Huron Expositor. Seaforth.
Huron Signal Goderich.
Independent - Bobcaygean.
Intelligencer - Belleville.
Irish Canadian Toronto.
Journal - St. Catherines.
Journal - - St. Mary's.
Journal - - Uxbridge.
Journal of Education. Toronto.
Leader - - Toronto.
Lightning Express. Elora.
Lakefield News. Lakefield.
Mail - - Toronto.
Mercury - - Guelph.
Mercury - - Renfrew.
Messenger - Millbrook.
Monck Reform Press. Dunnville.
Monetary Times. Toronto.
Monitor - - Brockville.
Monitor - - Meaford.
National - Toronto.
New Dominion Hamilton.
New Era - Clinton.
New Nation - Picton.
News - - Ingersoll.
News - - Kingston.
News - - L'Orignal.
News - - Milton.
News - - Ottawa.
News - - Smith's Falls.
News - - St. Catherines.
News - - Teeswater.
New Record - Fergus.
New Era - Drayton.
Norfolk Reformer. Simcoe.
North Hastings Review. Madoc.
North Ontario Observer. Port Perry.
North York Reformer. Newmarket.
North Star - Parry Sound.
Northern Advance. Barrie.
Observer - Bowmanville.
Observer - Pembroke.
Observer - Sarnia.
Observer - Tilsonburg.
Observer - Toronto.
Ontario Chronicle. Belleville.
Ontario Daily Belleville.
Ontario Gleaner. Cannington.
Ontario Reformer. Oshawa.
Orange Sentinel. Toronto.
Oxford Tribune. Ingersoll.
Packet - - Orillia.
Peel Banner - Brampton.
Planet - - Chatham.
Plaindealer - Alliston.
Plaindealer - Prescott.
Post - - Brussels.
Post - - Thorold.
Progress - - Unionville.
Recorder - Brockville.

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|---|---|
| Register | Norwood. |
| Reporter | Galt. |
| Review | Arnprior. |
| Review | Peterborough. |
| Review | St. Catherines. |
| Review | Woodstock. |
| Richmond Hill Herald. | Richmond Hill. |
| Sanitary Journal. | Toronto. |
| Sentinel | Cobourg. |
| Sentinel | Lucknow. |
| Sentinel | Woodstock. |
| Simcoe News (North). | Bradford. |
| Spectator | Hamilton. |
| Standard | Dundas. |
| Standard | Napanee. |
| Standard | Pembroke. |
| Standard | Port Perry. |
| Star | Alliston. |
| Star | Cobourg. |
| Star | Goderich. |
| Star | Paris. |
| Star | Waterford. |
| Spirit of the Age | Port Rowan. |
| Sun | Orangeville. |
| Sun | Simcoe. |
| Telegram | Toronto. |
| Telegraph | Berlin. |
| Telegraph | Palmerston. |
| Telegraph | Prescott. |
| Telescope | Walkertown. |
| Times | Bothwell. |
| Times | Brampton. |
| Times | Exeter. |
| Times | Hamilton. |
| Times | Orillia. |
| Times | Owen Sound. |
| Times | Peterborough. |
| Times | Picton. |
| Times | Port Hope. |
| Times | Stratford. |
| Times | St. Thomas. |
| Times | Wingham. |
| Times | Woodstock. |
| Transcript | Glencoe. |
| Transcript | Paris. |
| Tribune | Harriston. |
| Tribune | Welland. |
| True Banner | Dundas. |
| Union Standard. | Thornbury. |
| Victoria Warden. | Lindsay. |
| Vindicator | Oshawa. |
| West Durham News. | Bowmanville. |
| Western Despatch. | Strathroy. |
| World | Cobourg. |

Total 226.

*Province of Quebec.*

| | |
|---|---|
| Advertizer | Waterloo. |
| Argenteuil Advertizer. | Lachute. |
| Budget, Saturday. | Quebec. |
| Canada Medical and Surgical Journal. | Montreal. |
| Canada Mechanics' Magazine. | Montreal. |
| Canadian Illustrated News. | Montreal. |
| Chronicle | Quebec. |
| Courrier | St. Hyacinthe. |
| Gazette | Granby. |
| Gazette | Montreal. |
| Gazette | Sherbrooke. |
| Gazette des Campagnes. | Ste. Anne. |
| Guardian | Richmond. |
| Herald | Montreal. |
| Journal | Stanstead. |
| Journal of Commerce. | Montreal. |
| Journal of Education. | Quebec. |
| Journal de l'Instruction Publique. | Quebec. |
| L'Aurore | Montreal. |
| L'Avenir | Beauharnois. |
| L'Evènement | Quebec. |
| L'Opinion Publique. | Montreal. |
| L'Union | St. Hyacinthe. |
| L'Union des Cantons de l'Est. | Athabaskaville. |
| L'Union Medicale. | Montreal. |
| La Gazette | Joliette. |
| La Gazette | Sorel. |
| La Minerve | Montreal. |
| Le Nouveau Monde. | Montreal. |

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|---|---|
| La Revue Canadienne. - Montreal. | La Revue de Montreal. - Montreal. |
| Le Canadien - Quebec. | Medical Record. - Montreal. |
| Le Constitutionel. - Trois Rivières. | Mercury - - Quebec. |
| Le Courier - Quebec. | Naturaliste Canadien. - Quebec. |
| Le Franc Parleur. - Montreal. | News - - Sherbrooke. |
| Le Franco Canadien. - St. Jean d'Iberville. | News - - St. John's. |
| Le Journal - Quebec. | Observer - Coaticook. |
| Le Journal - Trois Rivières. | Observer - Cowansville. |
| Le Messager Canadien. - Granby. | Pilot - - Sorel. |
| Le National - Montreal. | Pioneer - - Sherbrooke. |
| Le Progrés - Sherbrooke. | Pontiac Advance. - Bryson. |
| Le Journal de Cultivateur. - Sorel. | Public Health Magazine. - Montreal. |
| La Nouvelliste - Rimouski. | Star - - Montreal. |
| Les Laurentides. - St. Lin. | Times - - Aylmer. |
| | True Witness - Montreal. |
| | Witness - - Montreal. |

Total 59.

*Province of Nova Scotia.*

| | |
|---|---|
| Advocate - Sydney, C.B. | Herald - - Yarmouth. |
| Casket - - Antigonish. | Journal (Alliance.) - Halifax. |
| Chronicle - Halifax. | May Flower - Halifax. |
| Chronicle, Eastern. - New Glasgow. | Mail - - Windsor. |
| Church Chronicle. - Halifax. | Nova Scotian - Halifax. |
| Citizen - - Halifax. | Recorder (Daily Acadian). - Halifax. |
| Courier - - Digby. | Reporter - Halifax. |
| Gazette - - Amherst. | Star - - Berwick. |
| Gazette Royal - Halifax. | Sun - - Truro. |
| Herald - - Halifax. | Times - - Sydney, C. B. |
| Herald - - North Sydney. | Wesleyan - Halifax. |

Total 22.

*Province of New Brunswick.*

| | |
|---|---|
| Border - - Sackville. | News - - St. John. |
| Carleton Sentinel. - Woodstock. | Religious Intelligencer. - St. John. |
| Chignecto Post - Sackville. | Reporter - Fredericton. |
| Colonial Farmer. - Fredericton. | St. Croix Courier. - St. Stephens. |
| Freeman - St. John. | St. Laurence Advance. - Chatham. |
| Gazette Royal - Fredericton. | Standard - St. Andrews. |
| Gleaner - - Chatham. | Telegraph - St. John. |
| Globe - - St. John. | Union Advocate. - Newcastle. |
| Moniteur Acadian. - Shediac. | |
| New Dominion - St. John. | |

Total 18.

*Province of Prince Edward Island.*

| | | | |
|---|---|---|---|
| Examiner | Charlottetown. | Patriot | Charlottetown. |
| Gazette Royal | Charlottetown. | Presbyterian | Charlottetown. |
| Herald | Charlottetown. | Progress | Summerside. |
| New Era | Charlottetown. | Pioneer | Alberton. |

Total 8.

*Province of Manitoba.*

| | | | |
|---|---|---|---|
| Free Press | Winnipeg. | Standard | Winnipeg. |
| Metis | Winnipeg. | | |

Total 3.

*Province of British Columbia.*

| | | | |
|---|---|---|---|
| British Colonist. | Victoria. | Mainland Guardian. | New Westminster. |
| Dominion Pacific Herald. | New Westminster. | Standard | Victoria. |

Total 4.

**Education Department, Quebec**; Hon. G. Ouimet, *Quebec.*

Library Books. *See* Class 6.

**Globe Printing Co.**; *Toronto, O.*

Specimens of Letter-press Printing.

**Hunter, Rose & Co.**; Publishers and Printers for the Government of Ontario; *Toronto, O.*

Collection of 110 Books on General Literature, being reprints of Standard Works, and several New Books by Canadian Authors, printed on Canadian paper.

**Inspector of Asylums, Prisons, &c., Ontario**; J. W. Langmuir, *Toronto, O.*

Reports of the Inspector of Asylums, Prisons, and Public Charities for the Province of Ontario.

**Miller, Adam & Co.**; Booksellers and Publishers; *Toronto, O.*

Canadian School Journal.

**Mowat, Hon. Oliver**; Premier of Ontario; *Toronto, O.*

(1.) The Revised Statutes of Ontario: being a Consolidation of the Public General Acts of the Legislature of Ontario, with such of the Public General Acts of the late Province of Canada as relate to matters within the authority of the Legislature of Ontario. 2 vols. (2.) Collection of such of the Revised Statutes of Ontario and of the Acts of the Legislature of that Province passed in the Session 41 Vict. 1878, as relate to Municipal Matters. Collected and arranged by R. E. Kingsford, of Osgoode Hall, Toronto.

**Minister of Education, Ontario**; Hon. Adam Crooks; *Toronto, O.*

(1.) Collection of Works on General Literature and Science as used for Public Libraries and Prizes in the High and Public Schools of Ontario. (2.) Annual Reports of the Normal, Model, High and Public Schools of Ontario. (3.) The Journal of Education for Ontario. (4.) The Educational Institutions of Province of Ontario, specially prepared for the Paris Exposition, 1878. (5.) Special Report to the Honourable the Minister of Education on the Ontario Educational Exhibit and the Educational Features of the International Exhibition at Philadelphia, 1876, by J. George Hodgins, LL.D., Deputy Minister. (6.) The Canada Educational Directory and Year Book for 1876, containing Digests of the existing School Laws and Regulations, School Statistics, &c. for Ontario, Quebec, Nova Scotia, New Brunswick, Prince Edward's Island, British Columbia, and Manitoba. By Alexander Marling, LL.B., Secretary to Minister of Education for Ontario.

**Mayor of Toronto** (Angus Morrison, Esq.), *Toronto, O.*

Illustrated Toronto, Past and Present: Being an Historical and Descriptive Guide Book, with numerous Tinted Illustrations. *See also* Class 16.

**Perrault & Co.**; Steam Power General Printers; *Montreal.*

Specimens of Fancy and Commercial Printing.

**Provancher, L'Abbé L**; *Quebec, Q.*

(1.) Canadian Flora: A Description of the Plants of the Forests, Fields, Gardens, and Waters of Canada, accompanied by a Vocabulary of Technical Terms and Analytical Key. 400 Wood Engravings. By L'Abbé L. Provancher. (2.) Canadian Entomology; preceded by an Elementary Treatise on Entomology (Coleoptera), with Illustrations by L'Abbé L. Provancher. (3). Supplement to the Canadian Coleoptera, with Additions and Corrections, by the same. (4.) The Canadian Naturalist: Containing Recent Observations and Discoveries on the Natural History of Canada. Edited by the L'Abbé Provancher. (5.) Elementary Treatise on Botany, for the use of Schools, &c., Illustrated with 80 Engravings on Wood, by the same.

**Provincial Secretary and Registrar, Ontario**; Hon. Mr. Hardy; *Toronto, O.*

Printed Reports.

**Rolland & Sons**; Publishers and Booksellers; *Montreal, Q.*

Collection of Books on Canadian Literature. (French.)

**Shannon & Meek**; *Kingston, O.*

Specimens of Letter-press Printing.

**Warwick, Wm.**; Publisher and Wholesale Stationer, *Toronto, O.*

Books on General Literature.

## CLASS 10.—STATIONERY, BOOKBINDING, PAINTING, AND DRAWING MATERIALS.

Paper; card and pasteboard; inks; chalks; pencils; pastels; all things necessary for writing-desks and offices; inkstands; apparatus for weighing letters, &c.; copying presses.

Objects made of paper: lamp shades, lanterns, flower-pot covers.

Registers, copybooks, albums, and memorandum books; bindings, loose covers for books, cases, &c.

Various products used in water-colour painting and tinting; colours in cakes, pastels, bladders, tubes, and shells. Instruments and apparatus for the use of painters, draughtsmen, engravers, and modellers.

**Brown Bros.**; Wholesale Bookbinders and Stationers *Toronto, O.*

Specimens of Bookbinding: (1.) Medium Ledger, full rough calf, extra russia bands. (2.) Quarto of old full morocco, extra gilt edges. *See also* Class 29.

**Canada Paper Company**; *Montreal, Q.*

Samples of Canada made Wrapping, Printing, and Coloured Papers.

**Dominion of Canada Plumbago Company, Limited**; Mines, Manufactories and Works, Graphite City, Canada; *Head Offices, 2, New Broad Street, London, England, and 34, Elgin Street, Ottawa, Canada.* W. H. WALKER, Managing Director; *Ottawa, O.*

Collection of Pencils, viz.:—Standard — Hexagon, Natural Polish, 6B to 6H, 12 grades. Round English Drawing—Natural Polish, 6B to 6H, 12 grades. Phonographic—Specially prepared for Reporters, &c., 3 grades, Soft, Medium, Hard. Hexagon Gilt-Maroon and Satin Finish, Nos. 1, 2, 3, 4 and 5. Round Gilt—Black and Satin Finish, Nos. 1, 2, 3 and 4. Universal—Natural Polish. Lumbermans' Crayons—Extra Good. Carpenter's Oval—7-inch, 9-inch, 12-inch. Carpenter's Octagon—7-inch, 9-inch, 12-inch. Triangular Pencils; Pencils in Fancy Shapes; Specimens of Pencils in different stages of manufacture; Specimens of Cedar, and samples of Plumbago in different forms for Pencils. The Dominion of Canada Plumbago Company's Pencils bear as a Trade Mark the name of the Company preceded by a Crown. The Pencils bearing Numbers compare with Pencils bearing Letters in so far as degrees of hardness and softness are concerned as follows: No. 1 (B), Soft and Black; No. 2 (HB.), Hard and Black; No. 3 (H.), Hard; No. 4 (HH.), Harder; No. 5 (HHHH.), very Hard. The best quality of Cedar used, and the finish of best description; the pencils are pronounced by artists, architects, and engineers to be excellent. (*Trophy.*) *See also* Classes 43 and 50.

**Dominion Leather Board Co.**; *Montreal, Q.*

Samples of Leather Board for Bookbinding.

**Hunter & Rose**; *Toronto, O.*

Specimens of Bookbinding, and Blank Books as follows:—Minute Book, 4to. post, full, red morocco. Minute Book,

4to. cap, full, roan. Journal, royal, full, russia, illuminated backing, heavily tooled, extra. Ledger, super-royal, full, rough calf, 3. Russia Bands, vellum corners, 3 patterns. Ledger, imperial, full rough calf, russia, banded ends, laced, 3 patterns of ruling. Cash Book, imperial, full, rough calf, tooled, russia banded ends, extra heavy, projecting russia back pieces.

**New Brunswick Paper Co.**; *N.B.*

Samples of Leather Board for Bookbinding.

**Novelty Works**; Jas. Smart, Manufacturer of General Hardware, &c.; *Brockville, O.*

Copying Presses, various patterns, Clips, Paper Files, Paper Weights, Pen Racks, Twine Boxes, &c. *See* Class 17.

**Rolland & Sons**; Booksellers and Stationers; *Montreal, Q.*

Commercial Blank Books.

**Taylor Bros.**; Paper Manufacturers; *Toronto, O.*

Specimens of Printing and Wrapping Papers, viz., Roll White Printing Paper made for Daily Globe 10 columns, Cream Manilla, Hatter's Manilla, unbleached Manilla, White Tea Print, White Confection, Blue, Purple, and Yellow. Rag Wrapping, Brown Wrapping, &c.

## Class 11.—General Application of the Arts of Drawing and Modelling.

Designs for industrial purposes: designs obtained, reproduced, or reduced by mechanical processes. Decorative paintings, lithographs, chromo-lithographs, or engravings for industrial purposes. Models and small articulated wooden models of figures, ornaments, &c.

Carvings. Cameos, seals, and various objects decorated with engraving. Objects modelled for industrial purposes produced by mechanical processes, reductions, photo-sculpture, &c. Casts.

**Council of Arts and Manufactures**; *Montreal, Q.*

Drawings and Designs.

## Class 12.—Photographic Proofs and Apparatus.

Photographs on paper, glass, wood, stuffs, and enamel. Heliographic engravings, lithographic proofs. Photo lithographic proofs, photographic stereotypes, stereoscopic proofs, and stereoscopes. Enlarged photographs. Colour photographs.

Instruments, apparatus, and chemicals necessary for photography. Materials and appliances used in photographic studios.

**Ewing & Co.**; Wholesale Picture Frame Manufacturers, &c.; *Toronto, O.*

Camera Stand.

**Henderson, Alex.**; Photographer; *Montreal, Q.*

Photographs of Canadian Scenery, viz., Ice Shoves, River St. Lawrence; Harvesting Ice on River St. Lawrence; Ice Jam, Montreal; River St. Lawrence in Spring and Montreal;

Victoria Bridge Abutment; Crossing River St. Lawrence in Spring; Scene on Murray River, Quebec; Scene in Saugenuay Country; Head of St. John's Bay, Saugenuay; Belle Isle Lake; Beloeil Mountain, Richelieu River; Hillgate, Metapedia River; Scene on Metapedia River; Scene on Intercolonial Railroad; Lily Lake; Bark Canoe on Wild Lake; Ice Cone, Montmorenci; Two Scenes, Hoar Frost; Evening Scene, Niagara; Ice Forms, Niagara; on Luna Island, Niagara; Floating Camp, Upper Ottawa; Park on St. Helen's Island, Montreal; Scene near Truro, Nova Scotia; A Warm Afternoon, Lake Inchbrakie; American fall, Niagara; Icebergs, &c.

**Hamilton, City of**; Exhibited by the Mayor; *Hamilton, O.*

Thirty-four Photographs of Public Buildings, Manufacturing Establishments, Private Residences, &c.

**Hunter & Co.**; Photographers; *Toronto, O.*

Photographs of Canadians. Cabinet and enlarged size.

**Minister of Public Works**; Hon. A. Mackenzie; *Ottawa, O.*

Photographs of Government Buildings in Ottawa (S. M'Laughlin, Photographer): Custom House, Montreal; Custom House, Toronto; Post Office, Montreal; Post Office, Toronto; Osgoode Hall, Toronto, and 16 views of the Welland Canal.

**McGaw**; *Toronto, O.*

Photograph of Queen's Hotel, Toronto.

**Notman & Sandham**; *Montreal, Q.*, and **Notman & Fraser**; *Toronto, O.*

Photographs of Canadian Scenes, illustrating Moose and Caribou Hunting, Snow Shoe Club, Curling, Fancy Dress Skating Carnival, Victoria Bridge, Windsor Hotel. Portraits, &c.

**Poole, E.**; *St. Catherines, O.*

Specimens of Photographs.

**Selwyn, A. R. C.**; Director of Geological Survey; *Montreal, Q.*

Collection of Photographic Views of Scenery in British Columbia.

## CLASS 13.—MUSICAL INSTRUMENTS.

Non-metallic wind instruments: with common mouth pieces, with reeds with or without air reservoirs.

Metallic wind instruments, simple, with lengthening pieces, with slides, with piston, with keys, with reeds.

Wind instruments with keyboards: organs, accordions, &c.

Stringed instruments played with the fingers or with the bow, without keyboards.

Stringed instruments with keyboards: pianos, &c.

Instruments played by percussion or friction.

Automaton instruments, barrel organs, bird organs.

Separate parts of musical instruments and orchestral appliances.

**Dominion Organ Co.**; *Bowmanville, O.*

Cabinet, Combination, and other Organs. These Organs have the following improvements: — *The Vox Humana* entirely changes the reed tone, giving it the gentle, wave-like tones of the human voice. *The Vox Celeste:* produced by an extra set of reeds peculiarly tuned. *The Octave Coupler* doubles the power of the instrument without increasing the size or number of reeds. *The Sub Bass,* an independent set of reeds, which increases the volume of the tone at least one third. *The Flugle Horn,* composed of three octaves of reeds, tuned to imitate the finest passages executed on an Italian Horn. *The Cello,* composed of three octaves of reeds, tuned to imitate the Violincello. *The Aeoline,* a soft, delicate, breathing stop. *The Piccolo,* a set of reeds, tuned one octave higher than the Principal, producing a very clear, shrill, pipe-like tone. *The Grand Organ Stop,* operated by the knee, is so arranged as to bring on the full power of the instrument at once.

**Martel, Pierre**; *L'Assomption, Q.*

Two Violins.

**Martel, O.**; *Montreal, Q.*

Musical Composition.

**Woods, W. H.**; *Port Rowan, O.*

Bell Piano.

### Class 14.—Medicine, Hygiene, and Public Relief.

Appliances, instruments, and apparatus requisite for anatomical and histological works.

Plastic anatomical models.

Instruments of medical research.

Apparatus and instruments for dressing wounds and simple surgery, general and local; anæsthetic apparatus.

Surgical instruments grouped according to their purposes: instruments for amputations, resection. Special instruments, obstetrics, ovariotomy, urinary channels, ophthalmology, dentistry, &c.; electro-therapeutic apparatus.

Apparatus for plastic and mechanical prosthesis, orthopœdic apparatus.

Trusses.

Apparatus for restoring persons apparently drowned or suffocated.

Baths and hydro-therapeutic apparatus; gymnastical apparatus for medical and hygienic purposes.

Plans and models of hospitals, various asylums, houses of refuge, poor-houses, lunatic asylums. Arrangements and furniture of such establishments. Various apparatus for infirm persons, invalids, and lunatics. Accessory objects for the medical, surgical, and pharmaceutical service in hospitals or infirmaries.

Chests and cases of instruments and medicines for military and naval surgeons. Means and apparatus for succouring the wounded on battle fields. Civil and military ambulances.

Appliances, instruments, apparatus, and all things requisite for veterinary surgery.

**Alexander, John R., M.D.**; *Montreal, Q.*

Electro-galvanic Trusses and Abdominal Supports. This Truss and Support is claimed to be the most perfect in use. It is said to be more comfortable, durable, less complicated, admits of more changes, and retains the hernia more easily and with less pressure than any other Truss in use. It can be moulded to fit the body perfectly, and will not rust or corrode. It is constructed of roll brass, nickel plated, with an elastic self-adjusting spiral spring, and cannot be displaced by any movement of the body. By changing the spiral spring, pressure can be increased or diminished. It is claimed to be the only complete circular metallic lever non-elastic Truss made.

**Canadian School Apparatus Company**; John P. May, Manager; *Toronto, O.*

Anatomical models of Human Body, Horses, &c. *See* Class 6.

**Cluthe, C.**; *Hamilton, O.*

Collection of Patent Spiral Spring Trusses. The following advantages are claimed, full ventilation, perfect freedom in all motions of the body, constant pressure combined with great simplicity of construction and durability.

**Horsey, G. F.**; *Kingston, O.*

Eleven pieces of Mechanical Dentistry, consisting of gold, silver, celluloid and vulcanized rubber plates.

**Inspector of Asylums for Ontario**; J. W. Langmuir; *Toronto, O.*

Photographs of Deaf and Dumb Institute, Belleville; Blind Asylum, Hamilton; Asylums for the Insane, Hospitals, Prisons, &c.; also Reports on the Asylums, Prisons, and Public Charities for the Province of Ottawa.

## CLASS 15.—MATHEMATICAL AND PHILOSOPHICAL INSTRUMENTS.

Apparatus and instruments used for mathematical purposes.

Apparatus and instruments illustrating practical geometry, land-surveying, topography and geodesy; compasses, calculating machines, levels, mariners' compasses, barometers, &c.

Apparatus and instruments for measurement: verniers, micrometric screws, dividing machines, &c.; scales for scientific uses.

Optical instruments. Astronomical instruments. Physical and meteorological instruments, &c. Instruments and apparatus requisite for laboratories and observatories.

Weights and measures of various countries. Coins and medals.

**Hearne & Harrison**; *Montreal, Q.*

Optical, Philosophical, Mathematical, and Surveying Instruments. Spectacles and Fancy Thermometers.

**Potter, Charles**; *Toronto, O.*

Surveying Instruments viz., Surveyors' Level, price $60, and Compass, price $45. (*Trophy.*) *See also* Class 65.

## Class 16.—Maps, and Geographical and Cosmographical Apparatus.

Topographical, geographical, geological, hydrographical, and astronomical maps, atlases, &c.

Physical maps of every kind. Plans in relief.

Terrestrial and celestial globes and spheres. Statistical works and tables. Tables and ephemerides for the use of astronomers and sailors.

**Canadian Commission**; *Ottawa, O.*

Birds' Eye View of the City of Ottawa, capital of ~~Ontario~~ Canada

**Copp, Clark & Co.**; Engravers and Lithographers; *Toronto, O.*

Geographical Maps, exhibited by the Education Department of Ontario.

**Education Department of Ontario**; Hon. Adam Crooks, Q.C., Minister of Education, Toronto; *Toronto, O.*

Cosmographical and other Maps.

100

**Genest, Pierre, M.A.**; *Quebec, O.*

Map of Nouvelle France, to illustrate the History of Canada.

**Hector, Thomas**; *Ottawa, O.*

Ellipto-Polar Map of the World. This Map is a projection of the Globe from its South pole upon the interior of an oblate spheroidal hemisphere, and thence orthographically down upon the plane of the transverse diameter forming its base. It presents an unbroken view of all parts of the world at once in their relative latitude and longitude, which no other map or system of projection in use does.

**Hind, Prof. H. Y.**; *Windsor, Nova Scotia.*

Dominion of Canada Fishing Maps.

1. Chart showing the position of the principal Fishing and Curing Establishments in the Gulf of St. Lawrence and Island of Newfoundland.

2. Chart showing the principal Winter Fishing Grounds for Cod, Halibut, and Herring, on the Atlantic coasts of the Dominion of Canada and the Province of Newfoundland.

*Note.*—Numerous Schools of large Cod, winter in deep water on the south shore of Newfoundland, on the Atlantic Coast of Nova Scotia, near the edges of 60 and 100 fathom lines of Sounding. Halibut winter generally in water of about the same depth as the coast. The movements of local schools of Cod and Halibut appear to be greatly influenced by the varying temperature of sub-surface currents. These seem to determine the local migration of young Herring, which form a large part of the winter food of these fish.

3. Physical Chart of part of the north Atlantic, showing the cold water area occupied by the Labrador current in summer, together with the distribution of the Fishing Grounds for the Commercial Cold Water Fishes, Cod, Halibut, Mackerel and Herring.

4. Chart showing the chief fishing grounds for Mackerel.

*Note.*—The spawn of the Mackerel floats and is hatched near the surface of the sea. The spawning areas are generally near to the winter hybernating haunts of the Mackerel. The feeding grounds of the fish are largely dependant on temperature, whether at the surface or in midwater. In the Gulf of St. Lawrence the feeding grounds are generally near the shore. In the open Atlantic they are frequently off shore during the warm summer months.

5. Chart showing the known Fishing Grounds for Halibut in the Gulf of St. Lawrence and the Atlantic Coast of British America.

The Halibut may be taken near the bottom at depths varying from 5 to 300 fathoms, the schools move at different seasons from shoal to deep water and back again, according to prevailing temperature. They also follow and return on the course of cold sub-surface currents, irrespective of depth, if the temperature be sufficiently low. The egg of the Halibut floats.

6. Physical Chart of part of the north Atlantic, showing the winter fishing grounds for the Cod, Halibut, and Herring, together with the winter haunts and summer migrations of the Newfoundland herds of Harp Seals.

7. Chart showing the known Fishing Grounds in the Gulf of St. Lawrence and Atlantic Coast of British America. The Cod spawns in mid-water. The egg floats and is developed near the surface. The seasons and areas of spawning of different schools are dependent on local temperature.

8. Chart showing the known spawning grounds and winter haunts of the Herring on the shores of the Dominion of Canada and the Province of Newfoundland.

The different schools of Herring approach the coast to spawn from May to October, according to the temperature of the water. Probably many schools spawn on outside banks, Herring spawn being found in the stomachs of Cod. In summer the schools are often found remote from shores on the banks. Large Herring appear to winter generally near the land. Young Herring in deep water.

**Harbour Commissioners**; *Montreal, Q.;* John Kennedy, Engineer-in-Chief.

Plan of the River St. Lawrence from Montreal to Kingston, showing the Canals and other works executed for the improvement of navigation between these points. 2. Plan of the River St. Lawrence between Montreal and Quebec, showing works executed for deepening and improving the ship channel.

**Minister of Interior**; Hon. David Mills; *Ottawa, O.*

Map of part of the Dominion of Canada, showing location of the principal products of the Field, Forest, Mines, and Fisheries, also Railways and Water Rates, 30 ft. long, 15 ft. high, specially prepared by the Department of the Interior for the Paris Exhibition, 1878.

**Minister of Public Works**; Hon. Alex. Mackenzie; *Ottawa, O.*

Map of a portion of Ontario, showing the Welland Canal now in course of construction, connecting Lake Ontario and Erie, length of canal, 27½ miles; depth of water, 14 feet; mean

difference of level between lakes, 326¾ feet. 26 locks, each 270 feet long, 45 feet wide; also sections of works, photographs, &c.

**Mayor of Toronto**; Angus Morrison, Esq.; *Toronto, O.*

Birds' Eye View of Toronto, with numerous engravings of the principal Public Edifices and Business and Private Buildings.

**Rolland & Sons**; *Montreal, Q.*

French Maps of Canada.

**Geological Survey of Canada**; Alfred R. C. Selwyn, Director; *Montreal, Q.*

Geological and Mineral Maps and Illustrations.

**Sicotte, L. W.**; *Montreal, Q.*

Cadastral Plans:—Official Surveys of City and Town lots, Farm, Lands, &c., in the Province of Quebec. Each lot is numbered, and the boundaries defined for the purpose of transfer and sale of property.

**Taché, Eugene E.**; *Quebec, B. M.*

Map of the Province of Quebec.

# THIRD GROUP.

## FURNITURE AND ACCESSORIES.

### Class 17.—All Kinds of Furniture, Cheap and Costly.

Sideboards, book cases, tables, dressing tables, beds, sofas, couches, billiard tables, &c.

**Bennet, Bros.** *London, O.*

Three carved Ends for Church Pews.

**Lee, William**; *Toronto, O.*

Hand-made Inlaid Centre Table. This table contains 25,000 pieces. The Manufacturer was awarded International Medal at Philadelphia for a similar Table.

**Lemieux, Edmond**; *Ottawa, O.*

Inlaid Chequer Table, containing 21,360 pieces of various woods, among which are 29 different Canadian woods.

**Major, E. & Co.**; *Montreal, Q.*

Wrought Iron Bedstead, price $6.

**Moorhead, George**; Manufacturing Co.; *London, O.*

Drawing Room Suite in Crimson Silk, Bed Room Set in Black Walnut; Cylinder Writing Desk in Black Walnut; Cylinder Writing Desk and Bookcase combined; Collection of Wooden and Cane Seat Chairs in Maple and Walnut, nearly 100 varieties consisting of Office Chairs, Fancy Chairs, Dining-room Chairs, Rocking Chairs, Nursing Chairs, Children's Chairs, &c.

**Novelty Works, James Smart**; *Brockville, O.*

Refrigerator, Cabinet Makers' Hardware:—Castors, Bed Fasteners, &c. Builders' Hardware:—Door Handles, Hinges, &c. The Novelty Works at Brockville owned by Mr. James Smart are very extensive. A great variety of General Hardware is manufactured at these works. *See* Classes 6, 10, 17, 43, 50, 51, 53, 57, 58, 62. Mr. Smart exports to England, and very extensively to Australia, his goods are of superior finish and command a very large sale wherever they have been introduced. The retail prices are marked on the goods exhibited at Paris. A large discount off those prices, from 25 per cent. to 50 per cent is allowed to the trade. The proprietor has facilities to ship any quantities of his goods that may be required at very short notice. Special attention is directed in this establishment to putting up the goods in neat packages for the market, and the greatest care is taken in packing and transmitting goods for foreign trade.

**White, J.**; *Woodstock, O.*

Mosaic Centre Table. (*Trophy.*)

### Class 18.—Upholsterers' and Decorators' Work.

Bed furniture, stuffed chairs, canopies, curtains, tapestry, and other hangings.

Decorative furniture made of costly stones and substances. Composition ornaments and objects moulded in plaster, carton-pierre, papier-mâché, &c. Frames. Paintings and decorations for churches.

**Cobban, G. & Co.**; *Toronto, O.*

Samples of Picture Frame Mouldings.

**Ewing & Co.**; *Toronto, O.*

Samples of Picture Frame Mouldings.

**Haycock, Edward**; *Ottawa, O.*

Highly embellished Wrought Iron Mirror Frame, made on the anvil with hammer and chisel, representing the Maple, Virginian Creeper, and Canadian plants copied from Nature.

### Class 19.—Crystal, Glass, and Stained Glass.

Drinking glasses of crystal, cut glass, plated and mounted crystal, &c. Table glass. Common glass, and bottles.

Window and mirror glass. Cast, enamelled, crackled, frosted, and tempered glass.

Glass, crystals for optical purposes, ornamented glass, &c.

Stained glass. Mirrors, looking glasses, &c.

**Elliot & Co.**; Wholesale Chemists and Druggists; *Toronto, O.*

Collection of Canadian Glass Bottles.

**Lewis, R. & Co.**; *Ontario Stained Glass Works, London, O.*

Enriched Figure Window in Stained Glass. Two subjects: 1. Birth of our Saviour; 2. The Annunciation.

**Walker, A.**; Painter and Decorator; *Halifax, N.S.*

Ornamented Plate Glass Panel, painted in imitation of Gold by a new process invented by the Exhibitor.

### Class 20.—Pottery.

Biscuit ware, hard and soft paste porcelains.

Fine earthenware with coloured glazing, &c. Earthenware biscuits. Terra-cotta. Enamelled lava. Bricks and tiles. Stoneware.

**Ahrens, J. H.**; Manufacturer of Flint, Enamelled and Common Earthenware; *Paris, O.*

Samples of Cream Pots, Milk Crocks, Milk Pans, Butter Pots, Jugs, Molasses Jugs, Fruit Jars, Preserve Jars, Fancy Flower Pots, Water Pitchers, Flower Pots. Rockingham or Flint Enamelled Ware; Water Pitchers, Tea Pots, Spittoons, Hanging Flower Pots, Vases, &c.

**Schuler, Henry**; *Paris, O.*

Collection of Stoneware, viz.:—Butter Pots, Preserve Jars, Cream Pots, Jugs, Tomato Jars, Churns, Common Pitchers, Spittoons, Molasses Jugs, Flower Pots, &c.

**St. John Pottery Works**; *St. John's, Q.*

Assortment of Stone ware, Fancy Flower Pots, &c.

### CLASS 21.—CARPETS, TAPESTRY, AND OTHER STUFFS FOR FURNITURE.

Carpets, moquettes, tapestry, terry and velvet pile, &c. Felt carpets, matting, &c. India-rubber floorcloth, &c.

Furniture stuffs of cotton, wool, or silk, plain or figured. Horse-hair fabrics and leather cloths, moleskins, &c. Leather for hangings, for covering furniture, &c. Oilcloths.

**Armstrong, John & A.**; *Guelph, O.*

Samples of Canadian Carpets.

**Elora Carpet Manufacturing Co.**; *Elora, O.*

Samples of Canadian Carpets.

### CLASS 22.—PAPER HANGINGS.

Printed paper hangings. Flock, marbled, veined paper, &c. Paper for covering, bookbinding, &c. Artistic papers. Varnished and enamelled paper. Imitations of wood and of leather. Painted or printed blinds.

**Staunton, M. & Co.**; *Toronto, O.*

Samples of Canadian Paper Hangings, Borders, &c., including Bronze Finish, Satin Finish, and White Blank.

### CLASS 27.—APPARATUS AND PROCESSES FOR HEATING AND LIGHTING.

Fire-grates, fire-places, stoves and hot-air stoves. Accessory objects for heating. Kitchen-ranges and apparatus for heating and cooking by gas.

Apparatus for heating by the circulation of hot water, steam, or heated air. Ventilated apparatus. Drying apparatus; drying stoves.

Enameller's lamps, blow-pipes; portable forges.

Lamps for illuminating purposes, fed with various oils.

Accessory objects for lighting. Matches.

Apparatus and accessory objects for lighting by gas.

Lamps for the electric light. Apparatus for the use of the magnesium light, &c.

**Burns, John**; *Montreal, Q.*

French Cooking Range, with Wooden Frame. This Range can be fitted with several small fires, each separate, thereby saving fuel. It has also a patent support to the oven door, and the grate, by the application of a lever, can be dropped and brought back into place from the outside of the range.

**Chanteloup, J.**; *Montreal, Q.*

Ship Lamps, Engineer Gauge Lamp, Head Lamp for Locomotive, Gauge Lamp for Locomotive, Fancy Bronze Centre Lamps, Bronze Side Lamp for Candle, Bronze Side Lamp, Loose Globe, White, Ruby, and Green Lanterns, Brass Hall Lamps, Chandeliers, plain and sliding, Single, Two-Light, and Three-Light Brackets, &c.

**Chown & Cunningham**; *Kingston, O.*

Cooking Stove, with Water Tank and Plate Warmer; price $24; Parlour Cooking Stove; price $10.

**Gurney & Co.**; Founders, &c.; *Hamilton, Toronto, & Montreal.*

Queen Base Burner Parlour Stoves, from $20 to $30 each.

**McMurray & Fuller**; *Toronto, O.*

Assortment of Telegraph and Match Splints.

**Prowse Bros.**; Manufacturers of Cooking Stoves; *Montreal, Q.*

The Osborne Portable Coal Hod and Self-Feeder Hall Stove, price, $60; and Wrought Iron Kitchen Range, price $80.

**Stewart, Jas. & Co.**; *Hamilton, O.*

Base Burning Stove, No. 27, "Sultana," medium size for Anthracite Coal, with Nickel plate edges, price $26 50c.

**Williams, J. M. & Co.**; *Hamilton, O.*

Collection of Tubular Lanterns.

## Class 29.—Leather Work, Fancy Articles, and Basket Work.

Dressing cases, work boxes, small articles of fancy furniture, liquor-cases, glove-boxes, caskets. Cases and bags, jewel-boxes. Purses, pocket-books, note-books, cigar-cases.

Turned, engine-turned, carved, or engraved articles in wood, ivory, tortoise-shell, &c. Snuff-boxes. Pipes.

Fancy toilet combs and brushes.

Lacquered ware.

Fancy basket-work; wicker work for bottles; articles in fine straw.

**Brown Bros.**; Manufacturers; *Toronto, O.*

Assortment of Diaries, Wallets, and Date Calendars. (*Trophy.*)

**Boeckh Chas.**; Brush Manufacturer; *Toronto, O.*

Large and varied Assortment of Paint, Varnish, Paper Hangers, Stencil and Hair brushes.

**Brazeau, F. R.**; *Montreal, Q.*

Indian Fancy Work, Tobogans, Lacrosse Sticks, &c. (*Trophy.*)

**Caron, Mdlle.**; *Rivirie de Loup, Q.*

Collection of Indian work.

**Garnier**; *Montreal, Q.*
Je-sa-po-ca Work. (*Trophy.*)

**Jarvis, C., junr.**; *Brantford, O.*
Assortment of Brooms, Whisks, and Feather Dusters. (*Part at Trophy.*)

**McMurray & Fuller**; *Toronto, O.*
Assortment of Brooms, Whisks, and Brushes.

**Nelson, H. A. & Sons**; *Montreal, Q.*
Corn Brooms, Hearth Brooms, and Dusters. (*Part at Trophy.*)

**Ulley, A. J.**; Brush Manufacturers; *Montreal, Q.*
Assortment of Brushes for Domestic use, Manufacturers, &c.

# FOURTH GROUP.

## TEXTILE FABRICS, CLOTHING, AND ACCESSORIES.

### Class 30.—Cotton Threads and Fabrics.

Cotton, dressed and spun.
Pure cotton fabrics, plain and figured.
Mixed cotton fabrics.
Cotton velvet.
Cotton ribands and tapes.

**Canada Cotton Manufacturing Company**; *Cornwall, Ontario*; Donald McInnes, Managing Director, *Hamilton, Ontario.*

Assortment of Cottonades, Striped Woven Duck, Checks, White and Coloured Yarns, and White and Coloured Peerless Warps.

**Dundas Cotton Manufacturing Company**; Hamilton Young, General Manager; *Hamilton, Ontario.*

Cotton Goods, Domestic; Sheeting, Ticking, Blue Denim, Checked Regattas, Oxford Stripes, and Grain Bags.

**Gault Brothers**; *Montreal, Quebec.*

Cotton Shirting.

**Hudon V. Cotton Company**; *Montreal, Q.*

Assortment of Cotton Goods.

**Sorel Wadding Manufactory**; *Sorel, Quebec.*

Samples Cotton Batting.

### Class 33.—Woollen Yarn and Fabrics.

Carded wool and woollen yarn.
Cloth and other woollen fabrics.
Blankets. Felt of wool or hair for carpets, hats.
Shoes.
Woollen fabrics unmilled, or slightly milled; flannel, tartans, swandown.

**British Columbia Advisory Board of 1876**; *B. C.*

Yarn from the Rocky Mountain Goat. Plain and Coloured Blankets made by the Indians.

**Calbeck, H. T.**; *Prince Edward Island.*

Samples of Tweeds.

**Gault, Brothers**; *Montreal, Quebec.*

Assortment of Tweeds.

**Mills & Hutchison**; *Montreal, Quebec.*
Assortment of Canadian Tweeds and Flannels. Awarded bronze medal at the Philadelphia Centennial, 1876, and silver medal from the Canadian Government for special excellence; also medal and diploma by the Government of Quebec at a late Provincial Exhibition.

**McCrae & Company**; *Guelph, Ontario.*
Assortment of Woollen Yarn.

**Oxford Manufacturing Company**; *Oxford, Nova Scotia.*
Assortment of Tweeds, Freize, Blankets, Shirting, &c.

**Paton Manufacturing Company**; *Sherbrooke, Quebec.*
Assortment of Tweeds.

**Rosamond Woollen Company**; *Almonte, Ontario.*
Woollen Fabrics, Tweeds, and Doeskins.

**Willett, S. T.**; *Chambly, Quebec.*
Fancy Flannels, assorted shades and patterns.

### CLASS 34.—SILK AND SILK FABRICS.

Raw and thrown silk. Floss silk yarn.
Silk fabrics, pure plain, figured, brocaded. Silk fabrics mixed with gold, silver, cotton, wool, thread.
Manufactures of floss silk, pure or mixed.
Velvet and plush.
Silk ribands, pure or mixed.

**Belding & Paul**; *Montreal, Quebec.*
Specimens of Sewing Silk.

**Farquharson, Miss**; *Whitby, Ontario.*
Piano Cover, original design of flowers, &c. painted in Oil on Velvet.

### CLASS 36.—LACE, NET, EMBROIDERY, AND TRIMMINGS.

Thread or cotton lace made with the distaff, the needle or the loom.
Lace made of silk, worsted, or mohair.
Gold and silver lace.
Silk or cotton net, plain or figured.
Tambour embroidery, crotchet work, &c. Gold, silver, and silk embroidery. Church embroidery. Embroidery; tapestry and other work done by the hand.
Lace-work and trimmings of silk, floss silk, worsted, mohair, horsehair, thread, and cotton; laces.
Lace-work and trimmings, real or imitation; lace-work for military uniforms.

**Russell, Miss Belle**; *Ottawa, Ontario.*
Point Lace Banner Fire Screen with Mountings.

**Strickland, the Misses**; *Oshawa, Ontario.*

Varied assortment of Crotchet Work. Laces, Embroidery, &c., made by hand, the work of the Misses N. M. and S. Strickland, were awarded a medal at the Centennial Exhibition, Philadelphia.

### Class 37.—Hosiery and Under-clothing and Accessories of Clothing.

Hosiery of cotton, thread, wool, cashmere, silk or floss-silk, pure or mixed. Elastic fabrics. Under-clothing for men; women, and children; baby linen. Flannel and other woollen garments.

Stays, scarves, gloves, gaiters, garters, braces, fans, screens, umbrellas, parasols, walking-sticks, &c.

**McCrae & Co.**; *Guelph, O.*

Woollen Vests, Shirts, Drawers, &c.

**Gault Brothers**, *Montreal, Q.*

Plain and Coloured Hosiery, Shirts, Drawers, &c.

**Strathroy Knitting Company**; James Watson, President; *Hamilton, O.*

Assortment of Ladies' Clouds, and Scarfs, Blue Grey, Shetland and Salmon Shirts and Ladies Oxford, assorted and various, Coloured Hose.

### Class 38.—Clothing for both Sexes.

Men's clothes; women's clothes. Waterproof clothing.
Men and women's head-dresses; artificial flowers and feathers.
Wigs and works in hair.
Boots and shoes.
Children's clothes.
Clothing peculiar to various professions and trades.
Native costumes of different countries.

**Berlin Felt Boot Company**; M. B. Shantz, Manager; *Berlin, O.*

Seamless Felt Calf and Kid Boots; also, Men's and Women's Slippers, from $1 to $4 per pair.

**Canadian Rubber Company**; *Montreal, Q.*

Large assortment of Men's, Youths', Women's, Misses', and Children's Rubber Boots and Shoes, from 30 cents. per pair upwards.

**Cedras, Joseph**; *Montreal, Q.*

Self-conforming and Ladies' Riding Silk Hats, from $2 to $4 each.

**Coristine, J. & Co.**; *Montreal, Q.*

Assortment of Wool Hats of Canadian Manufacture. Mocassins, Snow Shoes, Buffalo and Coon Coats.

**Denton, J. M.**; *London, O.*

Suit of Clothes of Canadian Tweed.

**Doney & Jost**; *Prince Edward Island.*
Skating Boots.

**Garrett, John**; *Hamilton, O.*
Assortment of Ladies', Boys', and Men's Boots.

**Morgan, H. & Co.**; *Montreal, Q.*
Samples of Gloves.

**Mullarky & Co.**; *Montreal, Q.*
Men's Split, Buff, Enamelled, Patent, Pebbled Grain, Russet and other Leather Boots; Women's Pebble, Prunella, Glace Kid, Goat, and Split Leather Boots. The following work is done by machinery:—The soles and heels are cut out. The boots and shoes are sewed and pegged, bottom finished, heels put on, trimmed, and burnished, and edges of soles trimmed and burnished. (*Trophy.*)

**McCaffrey & Co.**; *Montreal, Q.*
Two Silk Dresses and one Child's White Lace Dress.

**McCully, G. A.**; *Hamilton, O.*
Variety of Ladies' and Gentlemen's Boots, Gaiters, and Shoes.

**McKenzie, John**; *Summerside, P.E.I.*
Suit of Tweed Clothing.

**Minister of Agriculture**; *Ottawa, O.*
Indian Clothing and Equipments.

**McMaster, A. R. & Co.**; Wholesale Merchants; *Toronto, O.*
Samples of Canadian Buttons.

**Pinkerton & Whitham**; *Montreal, Q.*
Collection of Machine-made Boots and Shoes.

**Shantz, Jacob G.**; Button Manufacturer; *Berlin, O.*
Samples of Buttons made from Vegetable Ivory.

**Shorey, H. & Co.**; Wholesale Clothiers; *Montreal, Q.*
Variety of Ready-made Clothing, chiefly manufactured by machinery from Canadian Tweeds, exhibited for its cheapness, durability, and excellence of workmanship. This firm export largely, they employ over 1,000 hands.

**Skelton, Tooke, & Co.**; *Montreal, Q.*
Assortment of Shirts, Collars, Cuffs, &c.

### CLASS 41.—TRAVELLING APPARATUS AND CAMP EQUIPAGE.

Trunks, valises, saddle-bags, &c. Dressing cases and travelling cases. Various objects. Travelling rugs, cushions, caps, travelling costumes and boots, iron-shod sticks, grapnel-hooks, sun-shades, &c.

Portable apparatus specially intended for scientific voyages and expeditions; travelling photographic apparatus and instruments for astronomical and meteorological observations; equipments and

implements for geologists, mineralogists, naturalists, colonists, pioneers, &c.

Tents and camp equipage. Beds, hammocks, folding chairs, &c.

**Barrington & Son**; *Montreal, Q.*
Sole Leather Valises and Saratoga Trunk.

**Borbridge, S. & H.**; *Ottawa.*
Leather Valises.

**Kraft, Ernest**; *Hamilton, O.*
Travelling Trunks.

**Malcolm, R.**; *Toronto, O.*
Collection of Rivet Seal Postal Bags, manufactured from Cotton Duck, Linen, Cotton, Russia and Black Leather, Jute, Canvass, &c., also Padlock Bags and Newspaper Sacks.

### Class 42.—Toys and Games.

Dolls and playthings; dolls and figures in wax. Games for the amusement of children and adults. Instructive games.

**Commissioners of Canada**; *Ottawa, O.*
Lacrosse Sticks.

**Malcolm, R.**; *Toronto, O.*
Specimens of Curling Stones. (*Trophy.*)

**McMurray & Fuller**; *Toronto, O.*
Children's Sleighs. (*Trophy.*)

**Oil Cabinet and Novelty Co.**; *Montreal, Q.*
Rocking Horses, Indian Clubs, and Sleighs.

**Peacock, W.**; *Montreal, Q.*
Cricket Bats.

# FIFTH GROUP.

## MINING INDUSTRIES, RAW AND MANUFACTURED PRODUCTS.

### Class 43.—Mining and Metallurgy.

Collections and specimens of rocks, minerals, ores. Ornamental stones. Hard stones. Refractory substances. Earths and clays. Various mineral products. Raw sulphur. Rock salt; salt from salt springs.

Mineral fuel, various kinds of coal, coal dust, and compressed coal. Asphalt and rock asphalt. Bitumen, mineral tar. Petroleum, &c.

Metals in a crude state: pig-iron, iron, steel, cast-steel, copper, lead, silver, zinc, &c. Alloys.

Products of washing and refining precious metals, of gold beating, &c.

Electro metallurgy: objects gilt, silvered, or coated with copper, steel, nickel, &c. by galvanic process.

Products of the working of metals: rough castings, bells, wrought-iron, iron for special purposes, sheet-iron and tin-plates, iron plates for casing ships and constructions, &c.

Sheet-iron coated with zinc or lead; copper, lead, and zinc sheets, &c.

Manufactured metals: blacksmith's work, wheels and tires, unwelded pipes, chains, &c.

Wire drawing. Needles, pins, wire-ropes, wire-work, and wire-gauze, perforated sheet-iron.

Hardware, edge-tools, ironmongery, copper, sheet-iron, tin-ware, &c.

Other metal manufactures.

**Albert Manufacturing Company**; *Hillsboro', N.B.*

Specimens of Gypsum, crude and prepared. Average price of crude, $1 per ton (2,240 lbs.). Price of Plaster of Paris, $1 per barrel of 300 lbs. (delivered at port of shipment).

**Allan & Humphreys**; *Ottawa, O.*

Two large hexagonal crystals of Green Phosphate of Lime (Apatite).

**Brockville Chemical Works**; *Brockville, O.*

Specimens of Apatite, ground Apatite for conversion into Superphosphate, and Pyrites.

**Buckingham Mining Company**; *Montreal, Q.*

Large blocks of Apatite (Sulphate of Lime).

**Burrell, Ellis**; *Belleville, O.*

Assortment of Axes. Manufactory established 25 years. Daily make from 200 to 400 axes. Modern machinery worked by both steam and water power. (*Trophy.*)

**Cape Breton Coal Mines**; *N. S.*

Blocks from the following mines, forming a portion of the Coal trophy:—Sydney, Lingan, Gardiner, Toronto Mining Co., Caledonia, Little Glace Bay, Big Glace Bay, Reserve and Emery, Gowrie, International, Victoria, and Blockhouse.

**Coldbrook Rolling Mills Company, N.B.**

Iron Ship Knee and a variety of Nails and Spikes. The works of the Coldbrook Rolling Mills Company of the Dominion of Canada are situated in the village of Coldbrook. St. John County, on the line of the Intercolonial Railway, three miles from the city of St. John. The works have a capacity of 250 tons of iron per week, such as tapered iron for ships' knees, as required by "French Véritas" or "English and American Lloyd's." Also Bar Iron, Mine Rails, Nail Plate, Puddled Iron, and special sizes to order. Their Nail and Spike Factory have a capacity of 200 kegs per day. This Company control the largest plant of the kind in the Dominion of Canada, and claim they are the only company in Canada that manufacture so many varieties of finished iron, &c. Their mills have been in operation for a number of years.

**Cowan & Britton**; *Gananoque, O.*

T and Strap Hinges. This firm has been manufacturing Hinges, &c. for nearly 20 years. The factory is fitted with all the latest improved machinery, worked by water power. The facilities for shipping are excellent, being close to River St. Lawrence, L. G. T. & R.

**Cunard & Co.**; *Halifax, N. S.*

Specimens of yellow Copper Ore from New Brunswick. (*Trophy.*)

**Dennis, Col.**; *Ottawa, O.*

Soils from lands in Manitoba.

**Dominion of Canada Plumbago Company**; W. H. Walker, Managing Director; *Ottawa, O.*

1. Large block of disseminated Ore taken from a bed 27 feet thick. 2. Disseminated Ore taken from various beds. 3. Large blocks of pure Ore, taken from shaft pits. 4. Specimens of pure Ore from different veins, assay, 97 per cent. pure carbon.

Prepared Stocks of the following grades:—

| | | | | | |
|---|---|---|---|---|---|
| A 0 | for | Electrotyping | and | Pencils | (finest). |
| A 1 | „ | Lubricating, | Pencils, | Pianos | „ |
| A 2 | „ | „ | Paints, | Powder, Shot | (finest). |
| A 3 | „ | Crucibles, | Lubricating, | &c. | „ |
| A 4 | „ | „ | „ | „ | „ |
| A 5 | „ | „ | „ | „ | „ |
| A 6 | „ | „ | „ | „ | (coarsest). |
| B 1 | „ | „ | „ | „ | „ |
| B 2 | „ | „ | „ | „ | „ |
| B 3 | „ | „ | „ | „ | „ |
| F F | „ | Foundry Facings. | | | |

*The Dominion of Canada Plumbago Company* was formed in June 1875, with a capital of 100,000*l.* sterling, and has commenced operations on an extensive scale. The property of the Company comprises 1,250 acres of land in the township of Buckingham.

This section of the country is well timbered and watered, and the facilities for mining unsurpassed. The mines are about 18 miles from Ottawa, the capital of the Dominion. The plumbago is found in both beds and veins. Some idea of the size of the masses of plumbago which can be obtained, may be formed from the fact that one of the specimens exhibited at the Centennial Exhibition, weighed 4,870 pounds. The works or the Company include appliances for crushing, washing, dressing, &c. When in full working order they turn out about four tons of "prepared stock" per day, suitable for crucibles, pencils, and stove-polish, as well as for lubricating, electrotyping, casting, and numerous other applications. (*Trophy.*) (*See also* Classes 10 and 50.)

**Dominion File Works, Outram, G., & Sons**; *Montreal.*

Assortment of 299 files, rasps. Particular attention is called to the manner in which these files are put up for the market. (*Trophy.*)

**Forsyth, Robert**; *Montreal.*

Monument of polished Syenite, 20 feet high, on base of limestone five feet square. Price $800. This stone is said to exceed the red granite of Scotland in hardness. Mr. Forsyth has quarried quite a number of monuments and columns for architectural purposes, and the waste material has afforded a large quantity of excellent paving blocks which have been laid in some of the streets of Montreal. The blocks are from eight to 12 inches long, four inches thick, and six inches deep. They are shipped at the quarries for about $2 50c. per superficial yard. The facilities for shipping are all that could be desired, as vessels can load direct from the quarry.

**Frontenac Lead Mining Company**; *Kingston, O.*

One pig of Lead and specimens of Galena.

**Geological Survey of Canada**; Alfred R. C. Selwyn, F.R.S., Director; *Montreal, Q.*

Collection of the Economic Minerals of Canada. For particulars *see* special Catalogue. (*Trophy.*)

**Gilmour, G.**; *Montreal.*

Collection of Bits and Augers. (*Trophy.*)

**Goodfellow, Jas.**; *Northesk, N. B.*

Building stone and Grindstones.

**Greening, & Co.**; *Hamilton, O.*

Samples of Wire Rope.

**Hill, A. J.**; *Amherst, N. S.*

Collection of Nova Scotia Minerals.

**Hanger, R.**; *Hamilton, O.*

Marbleised Slate Mantel Piece. Price $40. Marbleised Slate is cheaper and more durable than Marble.

**Ives, H. R., & Co**; *Montreal, Q.*

Mediæval wrought-iron Gates, and sample Panels of wrought-iron Railing. This Firm are large Manufacturers of Builders' and house furnishing hardware. (*Trophy.*)

**Jones, D. F. & Co.**; *Gananoque, O.*

A large collection of Scoops, Spades, Manure Forks, Hoes, Shovels, &c. (*Part at Trophy.*)

**Major, & Co.**; *Montreal, Q.*

Wire-cloth, comprising: 1 roll of brass Wire-cloth for Paper Mills, 69 inches wide, 45 × 50 mesh, 25 cents. per square foot. 2. Roll of tinned Iron-wire Cloth, for making Flour Sieves, 18 × 20 mesh, 105 inches wide, 6 cents. per square foot. 3. Roll of Iron-wire Cloth for making Flour Sieves, 18 × 20 mesh, 108 inches wide, 5 cents. per square foot. This Wire-cloth is remarkable for its great width and cheapness. It is the widest Wire-cloth ever made in a power loom. The loom is one of the largest in the world, and weighs over 20,000 lbs. (*Trophy.*)

**McDonald, Thos. & Co.**; wholesale Manufacturers; *Toronto, O.*

Large and varied Assortment of Block Tin Ware for the Trade. Also japanned Shop-fitting Ware for Grocers, Confectioners, &c. This establishment is fitted up with new and improved machinery and manufactures largely for the Trade.

**Miller & Henshaw**; *Templeton, Q.*

Large blocks of Phosphate of Lime (Apatite). (*Trophy.*)

**McDougall, John, & Co.**; *Montreal, O.*

Samples of Bog Iron Ore, cold blast Pig, Slag, Limestone, (Flux) Charcoal. Price of pig iron, $32 per ton.

**McDougall, G. & A.**; *St. Maurice Forges, Three Rivers, Q.*

Specimens of Bog Iron Ore, Slag, Sandstone for Hearths, cold blast Pig, Charcoal.

**Montreal Rolling Mills**; *Montreal, Q.*

Samples of Horse Shoes, Shot, Tacks and Nails.

**New Rockland Slate Company**; *C. Drummond; Montreal, Q.*

Collection of Roofing Slates, Wash-tub, Library Shelf, planed Slate. The fact that this slate is being used in England goes far to prove its excellent qualities. This quarry is situated at a distance of about five miles south-westward from the Richmond station on the Grand Trunk Railway; but the line of a projected railroad passes within a few hundred yards of the quarry. It was first opened in 1868, and has been worked ever since. The quarry is at the top of a steep hill which is nearly 500 feet over the level of the St. Francis River at Richmond. Its depth is now upwards of 100 feet, and it presents natural facilities for working to a depth of 300. In 1874 the Company commenced the manufacture of slab-slate, and erected a mill with superior machinery, for sawing, planing and rubbing such materials as flooring, hearths, billiard-beds, blackboards, &c. The Company have about eighty men constantly employed, and produce between 7,000 and 8,000 squares of roofing slates a year. The following list shows the number of pieces to the square (100 square feet) of the various sizes of first-class slate made by the company. All these are sold at a uniform price

of $5 per square delivered on the cars at Richmond. Other sizes are made to order. Slate of second quality is sold at a lower price.

| Size, in inches. | No. pieces to square. | Size, in inches. | No. pieces to square. | Size, in inches. | No. pieces to square. |
|---|---|---|---|---|---|
| 24 × 14 | 98 | 18 × 12 | 160 | 14 × 9 | 291 |
| 24 × 12 | 114 | 18 × 11 | 175 | 14 × 8 | 327 |
| 22 × 14 | 108 | 18 × 10 | 192 | 14 × 7 | 374 |
| 22 × 12 | 127 | 18 × 9 | 213 | 12 × 8 | 400 |
| 22 × 11 | 138 | 16 × 10 | 222 | 12 × 7 | 458 |
| 20 × 12 | 141 | 16 × 9 | 124 | 12 × 6 | 534 |
| 20 × 11 | 154 | 16 × 8 | 277 | 10 × 8 | 514 |
| 20 × 10 | 169 | 14 × 10 | 262 | | |

**Norman, T. E.**; *Three Rivers, Q.*

Red and yellow Pigments, the former burnt and the latter crude; $2 and $1 respectively per 100 lbs.

**Novelty Works**; *Jas. Smart; Brockville, O.*

Builders' hardware, coffin furniture, &c. *See* Class 17.

**Page, L. B.**; *Nictaux, N.S.*

Iron ore, Hæmatite and Magnetite.

**Pictou Coal Association**; *New Glasgow, N. S.*

Blocks of Coal, forming Base of Coal Trophy from the following mines:—Albion, Acadia, Intercolonial, Vale, and Nova Scotia, with a timbered gallery and coal tub. (*Trophy.*)

**Piret, T. M.**; *St. Maurice, Q.*

Basin and pipe of an ancient mineral spring.

**Ramsay, A. & Son**; *Montreal, Q.*

Orr's patent anti-corrosive White Paint.

**Star Manufacturing Company**; *Halifax, N. S.*

Collection of Acme Club Skates. Price from $1 30 to $4 pair.

**Stassardt. S.**; *Gatineau Point, Q.*

Samples of Apatite.

**Steel Company of Canada**; *Londonderry, N. S.*

Iron Ore, Slag, Pig and Bar Iron, Steel, &c.

**Seaman & Company**; *Lower Cove. N.S.*

Collection of Grindstones and Whetstones. 1 Farmer's Grindstone, $7. 1 Ship Grindstone and Frame, $2 50. 500 lbs. of Grindstones, assorted, $5. Scythe Whetstones, $4 a gross. In 1876 the shipments of scythe stones were 1,250 gross. Total shipments of grindstones for three years ending 1877 were 5,184 tons, value $76,746. In 1875 one grindstone was shipped to the United States 7′ 2″ diam. 15″ on the face, and weighed nearly 8,000 lbs. About 100,000 grindstones of all sizes are produced annually in the provinces of Nova Scotia and New Brunswick.

**Selwyn, Alfred R. C.**; Director of Geological Survey; *Montreal, Q.*

Stratigraphical Collection of Rocks and Fossils.

**Smith, Manasseh**; *Radnor Forges, Q.*

Six broken Pigs, Bog-iron Ore, Slag, Charcoal, and Samples of Canadian Woods used for Charcoal making.

**Somerville, T.**; *Arnprior, O.*

Monument of grey marble, polished. Price $300.

**Steiner, N. L.**; *Toronto, O.*

Miniature Monument of Rare Marbles.

**Waterman, Brothers**; *Atlantic Petroleum Works, London, O.*

Specimens of Crude and Refined Petroleum. Surface oil and "gum-beds" were known to exist in the southern part of the township of Enniskillen from the time of the first settlement of the western part of Ontario. In 1860, Mr. Williams, of Hamilton, Ont., first obtained petroleum by boring in the underlying rock at this locality, which was then named Oil Springs. It was soon discovered, however, that the best "oil territory" lay a few miles northward in the same township, in the vicinity of the present town of Petrolia. The whole of the surrounding country is very level, with a clay surface. The present oil-producing region around Petrolia has an area of about eleven square miles. At first many of the wells, both at Oil Springs and Petrolia, flowed spontaneously, but now they all require to be pumped. The oil is accompanied by sulphurous saline water, and has an offensive odour. The difficulty in getting rid of this odour at first stood much in the way of the successful competition of the Canadian petroleum with mineral oils from other countries; but since the refineries have been able to thoroughly accomplish this, it has been acknowledged to be a very superior inodorous burning oil. (*Trophy.*) *See also* Class 47.

**Wood, W.**; *Hallsbridge, O.*

Lithographic Stone.

## Class 44.—Products of the Cultivation of Forests and of the Trades appertaining thereto.

Specimens of different kinds of forest trees.

Wood for cabinet work, for fire-wood, and for building. Timber for ship-building; staves; cleft timber shingles.

Cork: bark for textile purposes. Tanning, colouring, odoriferous and resinous substances.

Products obtained from forests; charcoal and dried wood; raw potash; turnery; basket-work; straw-work; wooden shoes, &c.

**Bastien, Benoit**; *Montreal, Q.*

Specimens of Canadian Timber, comprising: Elm, Birch, Cherry, Ash, Oak, Maple, Beech, Butternut, Basswood, and Pine. (*Agricultural Annexe.*)

**Department of Public Works**; *Ottawa, O.*

Collection of Timber and Trophy.

**Dobell, R. R., & Co.**; Timber Merchant; *Quebec, Q.*

White Pine Deals, 1st, 2nd, and 3rd Class; White Pine Lumber, 1st and 2nd Class; Red Pine Deals, 1st Class; Ash Planks; Red and White Oak Planks; Wavey Ash; Wainscot Oak; Pipe Staves, and Hickory Billets. (*Trophy.*)

**Goulette, O. V.**; *Gananoque, O.*

Tool Handles, Escutcheons, Bureau Knobs, Mallets, and Domestic Utensils.

**McMurray & Fuller**; *Toronto, O.*

Brooms, Whisks, and Brushes of all kind, Wash-boards, Pails, Match-boxes, Wheelbarrows, Patent Car Sash-fasteners, Boy's Sleighs, Clothes-racks, Churns, Stepladders, and Window-blinds. The works are situated at the central prison in Toronto, and were built by the Ontario Government at an expense of over $400,000. The shops are most complete in every respect, are heated by steam, and have in use the newest machinery. The timber is submitted to a steam kiln drying process at 190° Fah. previous to manufacture. Their cedar ware is manufactured expressly for hot climates. Their shipping facilities are excellent, as they have about three miles of tracks in their own yard which connect with the various railroads.

**Newtonville Peat Manufacturing Company**; *Clarke, O.*

Samples of Peat. The Newtonville Peat Manufacturing Company has been in operation about twelve months. The peat beds are from nine to fifteen feet deep. The peat is prepared by grinding and mixing into a pulp, which is afterwards dried, Dodd's process being adopted.

**Oil Cabinet and Novelty Company**; Wholesale and Retail Manufacturers of all kinds of Wooden Ware; *Montreal, Q.*

Step-ladders, Tool-handles, Knife-cleaners, Pulley-blocks, Mallets, Towel-rollers, Clothes-racks, Card-baskets, Match-boxes, Wash-boards, Knife-boxes, Butter-prints, Sleighs, Rocking-horses, &c.

**Pike & Richardson**; *Chatham, O.*

Samples of Wooden Hoops. (*Trophy.*)

**Provancher, l'Abbé L.**; *Quebec, Q.*

Specimens of the Wood from the Province of Quebec. 73 prepared and 68 rough samples of same pieces, showing bark. The former are 5″ + 1½ + 1¼″.

**Robertson, D. S.**; *Wanstead, Q.*

Two planks of Bird's Eye Maple. (*Trophy.*)

**Sanson, J. G.**; *Wotton, Q.*

Staves and Broom Handles. Samples of Birch, Bass, and Ash Planks, besides Clap-boards, Staves, and Broom-sticks. (*Trophy.*)

**Withrow & Hillock**; Wholesale and Retail Manufacturers; *Toronto, O.*

Assortment of Doors, Sashes, and Venetian Blinds. (*Trophy.*)

CLASS 45.—PRODUCTS OF HUNTING, SHOOTING, FISHING, AND SPONTANEOUS PRODUCTS. MACHINES AND INSTRUMENTS CONNECTED THEREWITH.

Collections and drawings of terrestrial and amphibious animals, of birds, eggs, fishes, of cetacea, of mollusca, and crustacea.

Products of hunting and shooting: furs and skins, hair, bristles, undressed feathers, down, horn, teeth, ivory, bone, tortoise-shell, musk, castoreum, and analogous products.

Products of fishing: train oil, spermaceti, &c. Whalebone, ambergris, shells of mollusca, pearls, mother-of-pearl, sepia, purple, coral, sponge.

Vegetable products of the earth, obtained without culture mushrooms, truffles, wild fruit, lichens used as dyes, food, ar fodder; fermented sap; Peruvian bark; useful barks and fila ments; wax, resinous gums; india-rubber, gutta-percha, &c.

Traps and snares: fishing lines and hooks, harpoons, nets, bait, and fishing apparatus.

Apparatus and instruments for gathering the products obtained without culture.

**British Columbia Advisory Board**; *B.C.*

Specimens of Dried Fish Glue or Isinglass, and Dog-fish Oil.

**Egan, Thos. J.**; *Halifax, N. S.*

Stuffed Moose, Deer, Moose Heads, Birds, &c. 1 Stuffed Moose, price $400; 1 Stuffed Deer, $50; 1 Stuffed Bear, $50; 2 Moose Heads, $75 each; 2 Cariboo Heads, $50 each; 4 cases of Stuffed Birds, $75 each; 1 case of Loons, $25.

**Holman, George**; *London, O.*

Collection of Game: Turkey, Grouse, &c.

**Lobb, James**; *Toronto, O.*

Elk Head and Horns, mounted, price $200.

**May, Dr. S. P.**; *Toronto, O.*

Stuffed Mammals, Birds, and Fishes. Products of Hunting, Deer, Rocky Mountain Sheep's Head, Moose Head, Grizzly Bear, Stuffed Birds, &c. (*Trophy.*)

**Minister of Agriculture**; Hon. C. A. P. Pelletier; *Ottawa, O.*

Buffalo Head and two Black Bears. Also large collection of Food, Fishes, and the ordinary Game sold in Canadian markets.

**Scott, Hon. R. W.**; *Ottawa, O.*

Head of Rocky Mountain Sheep.

**Selwyn, Alfred R. C.**; *Montreal, Q.*

Head of Buffalo. Price, $25.

**St. Clair Flat Shooting Co.**; J. Maughan, President; *Toronto, O.*

Collection of Ducks and Swans (prepared for the collection exhibited by the Minister of Agriculture).

**Walker, W. H.**; *Ottawa, O.*

Pair of Moose Horns, Mounted.

## CLASS 46.—AGRICULTURAL PRODUCTS NOT USED FOR FOOD.

Textile materials, raw cotton, flax and hemp, scutched and unscutched, textile vegetable fibres of all kinds, wool, washed or unwashed, cocoons of the silkworm.

Various agricultural products used in manufactures, in pharmacy, and for household purposes, oleaginous plants, oil, wax, resin, tobacco in leaves or manufactured, German tinder, tanning and dyeing substances.

Preserved fodder, and substances specially intended for feeding cattle.

**Bell, Richard**; *Charlottetown, P. E. I.*
Samples of Flax Seed.

**British Columbia Advisory Board**; *B.C.*
Wool from the Rocky Mountain Goat.

Shumlale 56

**Dartmouth Rope Company**; *Dartmouth, N. S.*
Large Assortment of Manilla Rope, for marine and other purposes. Average price, 10 cents. a pound. (*Part at Trophy.*)

**Haythorne, Hon. R. P.**; *Marshfield, P. E. I.*
Flax Seed and Fibre.

**Hallam, John**; *Toronto, O.*
Samples of Canadian Wool.

**Harvey & Co.**; *Hamilton, O.*
24 samples of Canadian Wools: Cotswold, Leicester, crossed Cotswold and Leicester, crossed Leicester and Merino, crossed Leicester and Southdown, X., XX., XXX., super pulled XXX., Combing pulled, Black pulled, unwashed Combing Fleece and Merino.

**Joly, H. G.**; *Quebec, Q.*
Hemp, hand broken and scutched by machinery, also Hemp Rope.

**Lyman, Clare, & Co.**, Wholesale Chemists; *Montreal, Q.*
Sample of Linseed Oil and Cake.

**Tucket & Billings**, Wholesale Manufacturers; *Hamilton, O.*
Assortment of tobacco.

## CLASS 47.—CHEMICAL AND PHARMACEUTICAL PRODUCTS.

Acids, alkalis, salts of all kinds. Sea-salt and products extracted from mother-water.

Various products of chemistry: wax and fatty substances; soaps and candles; raw materials used in perfumery; resins, tar, and the products derived from them; essences and varnishes; various coating substances; blacking. Objects made of india-rubber and gutta-percha; dyes and colours.

Mineral waters and natural and artificial aërated waters. Raw materials used in pharmacy. Medicines, simple and made up.

**Barnett, E. W.**; *Port Hope, O.*
Samples of Glue.

**Bishopric, Jas.**; *St. Catherine's, O.*
Assortment of Laundry and Erasive Soap, from $2 50 to $3 30 per box.

**Davids, Jos.**, Pharmaceutical Chemist, *Toronto, O.*
Samples of Iodomonia.

**De Lowis, H.**; *Halifax, N. S.*
Samples of Granulated Soap, 10 cents per lb.

**Freeland, Robert**; *Toronto, O.*
Soap in relief, showing the Canadian Trophy.

**Hood, A. W. & Son**; *Montreal, Q.*
Large assortment of Toilet and Laundry Soaps, Carbolic, Shaving, and Dog Soap. Toilet Soaps, from 48 c. to 96 c. per doz.

**Ibottson, W. B.**; *Sherbrooke, Q.*
Samples of Canadian Balsam.

**Lyman Brothers & Co.**, Wholesale Druggists; *Toronto, O.*
Collection of 39 Chemicals and 58 Fluid Extracts.

**Lyman Clare & Co.**, Wholesale Druggists, *Montreal, Q.*
Samples of Pearlash and Potash, also sample of Canada Balsam.

**Lunan & Son**; *Sorel, Q.*
Baking Powder.

**Macoun, Prof.**; *Belleville, O.*
Collection of Medicinal Plants of Canada, 140 species which are in general use by medical practitioners.

**Morse, Geo. D. & Co.**; *Toronto, O.*
Assortment of Laundry Soap; Queen City, 5 cents. per lb.; Crystal Bar, 6 cents. per lb.; Champion Soap, 5 cents. per lb.

**Rose, H. J.**; Pharmaceutical Chemist; *Toronto, O.*
Pharmaceutical Preparations:—Indelible Ink, Winter Balm, and Tooth Paste.

**Saunders, Wm.**; Pharmaceutical Chemist; *London, O.*
Pharmaceutical Preparations, 122 varieties of Fluid Extracts.

**Waterman, Bros.**; *Atlantic Petroleum Works, London, O.*
Products of Petroleum:— Petroleum, Tar, and Coke, Crude and Pure Paraffin Wax. Paraffin Wax in cakes and blocks, also Pyramids, Ornaments, Ornamental Cross with Flowers, and a large lion carved from a block of Paraffin Wax weighing over a ton weight. Assortment of Paraffin Wax Candles, white and coloured, for domestic purposes, railroads, carriages, churches, &c., &c. Varieties of illuminating oil varying from 110° to 175° vapour test. Unprepared and prepared Paraffin Oils of different specific gravities. Mineral Seal Oil, Tanners' Oil, Plumbago Oil, Railroad Oils for Car Boxes and Locomotives, Axle Grease, &c., &c. (*Trophy.*)

This firm has a very extensive manufactory fitted up with all modern machinery; labour-saving appliances are adopted throughout from the time the oil is taken from the well until it is distilled and its products prepared for the market. The oil is pumped from the wells into settling tanks; after settling it is pumped into cylinder railway cars, each containing about 2,700 gallons. Special trams of these cars are run into the refineries. The oil is then stored in large tanks underground, from which it is pumped direct into cylinder iron stills, each holding about 8,000 gallons. The fuel for heating consists of the refuse tar from the petroleum combined with steam. In the distillation the different products are removed, consisting of benzine or naptha, different grades of burning oil, intermediate oil, tar, and coke. The benzine, after certain chemical processes, is ready for use; it is in great demand with painters, having to a great extent superseded the use of turpentine. The burning oils are then refined for illuminating purposes. The intermediate oil is also refined, the lighter oil being removed, and the heavy oil, after the wax has been removed, is manufactured for lubricating purposes. The tar is distilled at a higher temperature in smaller retorts, yielding large quantities of heavy paraffin oil, from which the wax is pressed, the oils being finished in different grades for lubricating purposes. The crude wax, in the form of thin scales, of a dark yellow colour, is then melted, and after bleaching, &c. is used for the manufacture of candles, &c. &c. The Railroad Oil which is in general use in Canada and the United States, from its excellence and cheapness, for Railroad Axles and Locomotives, is prepared without distillation. The light oils and foreign substances, such as sand and grit, are removed by an improved steam process, leaving the oil a pure fatty or greasy substance.

## CLASS 49.—LEATHER AND SKINS.

Raw materials used in the dressing of skins and leather.

Raw hides, salted hides. Tanned, curried, dressed, or dyed leather. Varnished leather.

Morocco and sheepskin; skins, grained, shamoyed, tawed, dressed, or dyed. Prepared skins for glove-making. Skins and furs, dressed and dyed. Parchment.

Gutwork: strings for musical instruments, gold-beater's skin, sinews.

**Craig, Wm. & Son**; *Port Hope, O.*

Bookbinders' and Saddlers' Leather: — Russets, Cochineal, Blue Roans, Purple Roans, Maroon Roans, Law Sheep, Rough Sheep, Rose, Blue, and Green Beadings, &c.

**Gunn, & Co.**; Tanners, &c.; *Kingston, O.*

30 sides of Hemlock tanned Spanish Sole Leather, from Central America and Buenos Ayres Hides.

**Harvey, John & Co.**; *Hamilton, O.*

Canadian Sheep Skins, consisting of Cotswold, Leicester, Crossed Cotswold and Leicester, and Crossed Leicester and Merino.

**Hallam, John**; *Toronto, O.*

Varieties of Leather : — Black Enamel, Indian Red, Blue, White, Polished Pebble, Heavy Split, Calf Split, &c.

**Moseley & Ricker**; *Montreal, O.*

Varieties of Leather :—Patent, Russet, Smooth Grain Polished, Pebbles, Buff or Satin, Kip, Calf, &c.

**Pett, James**; *Hamilton, O.*

Sheep Skin Hearth Rugs and Mats.

**Pilkey & Bush**; *Hamilton, O.*

Calf Skins and Lace Leather.

# SIXTH GROUP.

## APPARATUS AND PROCESSES USED IN THE MECHANICAL INDUSTRIES.

### Class 50.—Apparatus and Processes of the Art of Mining and Metallurgy.

Boring apparatus for artesian wells and wells of large diameters. Boring machines and apparatus for breaking down coal and cutting rocks. Apparatus for blasting by electricity.

Models, plans, and views of the mode of working in mines and quarries. Works for obtaining mineral waters. Machines and apparatus used for extracting ore, and for lowering and hoisting miners.

Machines for draining; pumps.

Ventilating apparatus; ventilators.

Safety lamps; lamps for electric light. Apparatus for saving life; parachutes; signals.

Apparatus for the mechanical dressing of ores and mineral fuel.

Apparatus for compressing fuel into cakes.

Apparatus for the carbonisation of fuel. Smelting furnaces. Smoke consuming apparatus.

Apparatus used in metal works.

Special apparatus used in forges and foundries, electro-metallurgical apparatus.

Apparatus used in metal manufactures of all kinds.

**Dominion of Canada Plumbago Co.**; W. H. Walker, Managing Director; *Ottawa, O.*

Collection of large and small size Crucibles, including Steel Crucibles, Crucibles for melting Metals other than Steel, Jewellers' Jars, File Hardeners, Furnace Elbows, Gas Retorts, Dental Cups, Stirrers, Dippers, Stoppers, Nozzles, Stove Polish, &c., &c. The Crucibles have numbers representing their capacity stamped on the bottom of each. The steel Crucibles represent about 2 lb. to each number. Brass and other Crucibles from 3 lb. to 5 lb. each number, thus No. 50 represents a crucible in which may be melted about 150 lbs. of brass or bronze, 180 lbs. of silver, and 250 lbs. of gold. (*Trophy.*)

**Northey, Thos.**; *Hamilton, O.*

Patent Double-acting Steam Pump.

**Novelty Works**; Jas. Smart; *Brockville, O.*

Assortment of Cistern, Deep Well, and Force Pumps. *See* Class 17.

**Robertson & Dayer**; *Oakville, O.*

A large assortment of Lifting Pumps, Force Pumps, and Combined Lifting and Force Pumps, with branch Pipes and Hose varying in price from $2 50.

**Taylor & Brother**; *Montreal, Quebec.*

Pneumatic Fire Extinguisher, nickle-plated on copper, with Force-pump, Hose, &c. complete. Experts appointed by the Dominion Government to examine and test this machine, report as follows:—"We find that the parts of which it is constructed are few in number, simple in form, and so combined as to make a reliable and durable Machine. It was exercised upon two fires, composed of Oil, Varnish, and Naptha barrels, together with other inflammable materials, the whole saturated with Kerosene. These fires were promptly quenched, in both instances, with the contents of one Machine. The charge in this Extinguisher being simply clean water, its use under any circumstances is not attended with that injury to fabrics or paint which is certain to follow the use of Extinguishers charged with Acid. We therefore recommend it as a simple, effective, and easily-managed Apparatus, better adapted as a Fire Extinguisher than any other portable contrivance for the same purpose we have yet seen."

## Class 51.—Agricultural Implements and Processes used in the Cultivation of Field and Forests.

Plans of culture, distribution, and management of crops. Apparatus and works for agricultural engineering, draining, irrigation, &c. Plans and models of farm buildings.

Tools, implements, machines, and apparatus used in husbandry, sowing and planting, harvesting, preparation and preservation of crops.

Various agricultural machines worked by horse-power or steam.

Carts and other rural means of transport.

Locomotive and horse-gins.

Manures, organic or mineral.

Apparatus for the physical and chemical study of soils.

Plans of different systems of replanting, managing, and cultivating forests.

Apparatus used in the cultivation of forests, and in the trades appertaining thereto.

Apparatus used in the manufacture of tobacco.

**Abell, John**; Agriculture Works; *Woodbridge, Ontario.*

"Matchless Reaper," complete with extra arm, short tongue and ground jack, for exhibiting same, price $110.

**Collins, Edward**; *Dundas, Ontario.*

"The Suspension Bag Holder." This is a simple machine for holding grain bags open for convenience in filling. The result is produced by bending the steel wire so as to form a spring. The cost of production of those with the shield, 65 cents; without the shield, 45 cents each.

**Craig, F. J.**; Manufacturer of Agricultural Implements; *Strathroy, Ontario.*

Gang Plough, with Tongue, price $23. Corn Sheller, price $12.

**Elliot, John**; Agricultural Implement Manufacturer; *London, Ontario.*

Single Meadow Lark Mower, price $80; Single Lark Reaper price $120. These machines are manufactured from Canadian products, and are of the same pattern as those which were awarded the highest prize at the Centennial Exposition, 1876.

**English, Samuel**; *Omemee, Ontario.*

Grain Cradle, superior finish, price $10; ordinary finish, $5. The Exhibitor has for ten years manufactured Grain Cradles. Barley Forks, &c., and claims to have taken first prizes wherever he has exhibited.

**Frank & Ketchum**; *Strathroy, Ontario.*

Rakes; Scythe Snaths; Full Muley Cradles, with scythes complete; Morgan Cradles, with scythes complete; and Half Muley Cradle, with scythes complete. This factory has been in operation for about 10 years, and manufactures large quantities of the above articles, including broom handles, &c. They export largely. Last year they had in preparation for the market 50,000 rakes, 4,000 cradles, 8,000 snaths, 600 doz. full handles, 40,000 hoe handles, 100,000 vibrator and reaper teeth, and some hundreds of thousands of broom handles, besides other goods. The timber used in this factory is Maple, Beech, White Ash, Hickory, Elm, and Ironwood.

**Grant, Peter**; *Clinton, O.*

Power Hay-fork for unloading Hay, Straw &c.

**Gillies, George**; *Gananoque, Ontario.*

Three Flexible Iron Harrows, from $10 50 to $11 50 each; also Flexible Iron Cultivator, price $12.

**Green Bros. & Co.**; Agricultural Implement Manufacturers; *Waterford, Ontario.*

Single Reaper (Royal), price $70. These Reapers are light and simple in construction. Since the Centennial, orders have been received from Russia, Germany, and Scotland. They are remarkable for their lightness of draught and ease in handling.

**Novelty Works**; Jas. Smart; *Brockville, O.*

Iron Corn Sheller, $9. Power Hayfork for unloading Hay, Straw, &c. *See* Class 17.

**Patenaude, N. F.**; *Sorel, Q.*

Patent Steel Plough for general purposes, price $10.

**Perrault, J.**; *Montreal, Q.*

Military Spade, 1 lb. weight, adapted to fit Bayonet. Can be used for earthworks, also as a support for the Rifle when firing.

**Sawyer & Co.**; Manufacturers of Agricultural Implements; *Hamilton, O.*

Ironclad Mower, price $85. This Firm has a large export business with Europe and Australia.

**Vary, B. W.**; *Strathroy, O.*

Iron Gang Plough with Tongue, price $30.

**Watson, John**; Manufacturer of Agricultural Implements; *Ayr, O.*

Collection of 15 Agricultural Implements. 1. Royce Single Reaper, complete, price $90. Claimed to be the lightest,

simplest, and cheapest Reaper in the world. 2. Humming Bird Single Mower, price $70. This Mower, with the exception of the tongue, is entirely made of iron; it is simple in construction, and the bar can be folded across the tongue for transportation. 3. Self-Dump Hay Rake, $34. This Rake can be used for all kinds of grains and grass. The load can be discharged by pressing a lever forward, the horse then empties it, and the rake teeth instantly falls into position for raking. 4. Grain Drill, price $75. This is a double distributing force feed drill, used for sowing wheat, oats, peas, beans, maize, barley, and grass seed. The teeth can be set either in a line or zig-zag. 5. General Purpose Plough, price $20. This Plough is made with an adjustable patent coulter and wrought-iron beam, cast-steel share, also steel mouldboard and landside. 6. Iron Frame Bevel Jack, price $20. This Jack is adapted for horse-power; two different motions can be obtained at the same time, one by a belt, the other by a rod. 7. Gardner's Double-action Root Cutter, price $30. By simply reversing the motion this implement cuts either into slices or squares. It is so constructed that the roots are prevented from rolling. 8. Iron Turnip Seed Drill, price $22. Can be used for one or two drills at a time, covering the seed in the ground. Adapted either for beets, turnips, carrots, or mangold wurtzel. 9. Canadian Hand Straw Cutter, price $20. This implement has a positive feed motion with solid feed rollers that will not wind or choke up. 10. Victor Grain Grinder, price $27. For grinding oats, barley, peas, corn, &c. It consists of two vertical plates, one of which revolves against the face of the other. The grain is fed into the face plates at the centre by a screw and discharged at the circumference. 11. Roller Grain Crusher, price $50. This form is used largely in Germany; it is powerful and quick in action. It consists of two iron rollers, fluted spirally, one of which runs faster than the other, the grain being fed between the rollers. 12. Four-Horse Pitts Power, price $70. This machine can be used with either one, two, three, or four horses. 13. Power Straw Cutter with carrier for steam power, price $65. This chaff cutter has a capacity of 2½ tons per hour, is fitted with three knives which can be changed to cut six different lengths. It has an elevator or carrier attached to deliver the chaff, and is entirely boxed in to prevent accidents. By simply moving the handle, the machine can be reversed, fed, or stopped. 14. Canadian Power Corn Sheller, price $25. Shells two cobs at one time, and has a capacity of 250 bushels per day. 15. Little Hero Corn Sheller, price $13. Shells one cob at a time; has a capacity of 100 bushels per day. Mr. Watson, who is the recipient of several medals and diplomas, does a large export trade with Russia, Denmark, Germany, Austria, Prussia, the Australian Colonies, and South Africa.

**Wilkinson, George**; *Aurora, O.*

Iron Plough.

**Whiting Manufacturing Co.**; *Oshawa, O.*

Assortment of Scythes, Hoes, and Rakes. This manufactory does a large European trade, having establishments in London and Liverpool.

## CLASS 52.—APPARATUS AND PROCESSES USED IN AGRICULTURAL WORKS, AND IN WORKS FOR THE PREPARATION OF FOOD.

Apparatus used in agricultural works: manufacture of artificial manures; of drain pipes; cheese, factories, dairies; apparatus used in preparing flour, fecula, starches, oils; apparatus used in breweries, distilleries, sugar manufactories and refineries; workshops for the dressing of textile materials; silk-worm nurseries, &c.

Apparatus used in the preparation of alimentary products, mechanical appliances for kneading and baking; apparatus used in making pastry and confectionery.

Apparatus for the manufacture of vermicelli, maccaroni, &c. Machines for making sea biscuits. Chocolate machines. Apparatus for roasting coffee.

Apparatus for making ices and cool drinks; manufacture and preservation of ice.

**Barter, Benjamin**; *Toronto, O.*

Machine for purifying wheat middlings. This machine is constructed in sections, through each of which an upward current of air, varying in strength with the size and weight of the middlings, passes, to carry away the impurities as it travels over the bolting cloth. It has also an automatically working brush to keep the bolting cloth free from corrode of flour, causing the purifier to do uniform work with the greatest economy.

## CLASS 53.—APPARATUS USED IN CHEMISTRY, PHARMACY, AND TANNING.

Laboratory utensils and apparatus.

Apparatus and instruments used in assays for industrial and commercial purposes.

Processes and apparatus used in the manufacture of chemicals, soaps, and candles.

Processes and apparatus used in the manufacture of essences, varnishes, and articles made of india-rubber and gutta-percha.

Processes and apparatus used in gasworks.

Processes and apparatus used in bleaching.

Processes used in the preparation of pharmaceutical products.

Processes used in tanyards, and in leather dressing.

Processes and apparatuses used in glassworks and in china and earthenware manufactories.

**Elliott, Thos. Scott**; *Guelph, O.*

Washing Machine, price $20; and Wringing Machine, price $10.

**Hamilton Manufacturing Co.**; John Harvey, Treasurer; *Hamilton, O.*

Washing Machine (Walker's Patent), price $4. 10-inch Clothes Wringer (Page's Patent), price $4. In quantities of 8 to 10 dozen, these machines can be delivered at Liverpool, carriage paid, for 16*s.* each.

**McMurray & Fuller**; Manufacturers; *Toronto, O.*

Two Climax Clothes Wringer, price $5 each.

**Novelty Works**; Jas. Smart, *Brockville, O.*

Clothes Wringer, price $4 60 and $4 25 each.

**Shorey, E. R. & Co.**; *Napanee, O.*

Odell's Royal Canadian Clothes Wringer, price $5.

**Willett, Gilbert R.**; *Coaticook, Q.*

Clothes Wringer, price $10; and Washing Machine, price $5.

## Class 54.—Machines and Apparatus in General.

Separate pieces of machinery; bearings, rollers, slide-bars, eccentrics, toothed wheels, connecting rods, cranks, parallel joints, belts, funicular apparatus, &c. Gearing, spring, and catch work, &c. Regulators and governors.

Lubricators.

Machines for counting and registering. Dynonameters, steam gauges, weighing machines. Gauges for liquids and gas.

Machines used for moving heavy weights.

Hydraulic machines for raising water, &c.; norias (chain pumps), scoop wheels, hydraulic rams, &c.

Hydraulic engines, water wheels, turbines, hydraulic lifts.

Accumulators and hydraulic presses.

Steam engines. Boilers, steam generators, and apparatus appertaining thereto.

Apparatus for condensing steam.

Machines set in motion by the evaporation of ether, chloroform, ammonia, or by a combination of gases.

Machines set in motion by gas, hot air, and compressed air.

Electro-magnetic machines. Windmills and panemones. Air-balloons.

**Burrows, Stewart, & Milne**; Founders, &c.; *Hamilton, O.*

Drop lever platform scales on wheels. Union scales, Grocers' and Butchers' Scales, Trip Scale, Even Balance Scale, and Letter Scale.

**Canadian Rubber Company**; *Montreal, Q.*

Rubber Belting, Hose, Engine Valves, Patent Steam Fire Engine hose, with coupling complete, Stair-pads, Corks, Bumpers, Packing, Wringer-rollers, &c.

**Dominion of Canada Plumbago Company**; *Ottawa, O.*

Lubricating Stock. (*Trophy.*) (*See also* Class 50 and 53.)

**Kennedy, Wm., & Sons**; *Owen Sound.*

Leffel Water Wheel. The Exhibitor claims for this water wheel, economy of water, nice adjustment of gates for letting on or shutting off water for light or heavy work. Freedom from effects of frost; compactness, durability, cheapness, and little mill-wright work in fitting up. From its speed it requires light gearing.

## CLASS 55.—MACHINE TOOLS.

Engines and tools for preparing wood for the workshop. Machines for making casks.

Machines for cutting cork. Lathes, boring and plating machines. Slotting, drilling, and shaping machines. Screw cutting engines and rivetting machines. Various kinds of tools used in machine workshops.

Tools, engines, and apparatus for pressing, crushing, working up, sawing, polishing, &c. Special tools and engines used in various trades.

**Leitch, John, & Sons**; *Hamilton, O.*

Hand Power Iron Cutter, price $12. This is claimed to be the most simple and powerful combination of iron and steel there is for cutting or punching iron, when the quantity of material is taken into account.

**Morland, Watson, & Co.**; Wholesale Hardware Merchants; *Montreal, Q.*

1. Inserted tooth Circular Saw. 2. Gang Saw. 3. Cross-cut Saw. 4. Canadian Webs. 5. Elliptic "F. B." Webs.

**Novelty Works, Jas. Smart**; *Brockville, O.*

Assortment of Boring Machines, Mortising Machines, Drills, Iron Cutters and Jack Screws. Small Machines for Household. Meat Cutters, Sausage Stuffers, Vegetable Chopper, &c. *See* Class 17.

## CLASS 58.—APPARATUS AND PROCESSES FOR SEWING AND FOR MAKING-UP CLOTHING.

Ordinary Implements used by tailors and sempstresses. Sewing quilting, hemming, and embroidering machines.

Implements for cutting out materials and leather for making garments and shoes.

Machines for making, nailing, and screwing boots and shoes.

Machines for the application of india-rubber.

**Briggs, Samuel Hamilton**; Machinist; *Hamilton, O.*

Specimen of Card Belting manufactured on leather, cloth, and rubber, in a variety of styles.

**Leitch, John, & Son**; Machinist; *Hamilton, O.*

The reversible Peg Cutter for taking pegs out of boots and shoes. This is claimed to be superior to other machines for its simplicity of construction, strength, and durability. It has no springs and levers, and can easily be reversed. 2. The Revolving machine is worked by a treadle. The knives can easily be taken out for sharpening and replaced.

**Novelty Works, Jas. Smart**; *Brockville, O.*

Sad Irons, 3 cts. per lb. Charcoal Sad Irons, 80 cts. to $1 80c. each.

**Raymond, Charles**; Sewing Machine Manufacturer; *Guelph, O.*

Sewing machines, both single and double thread, for hand or foot power. One, No. 1 Sewing Machine, full cabinet, extra

finish. One, No. 1 ditto, open cabinet, veneered, piano finish, with extension leaf. One, No. 2 Sewing Machine and cover, extra finish. One, No. 1 ditto, with cover, veneered, extra finish. One, No. 1 ditto, with cover and extension table, fancy ornamented. One No. 1 Sewing Machine and cover, ordinary stand and pulley head. These machines are manufactured for all markets, home and foreign, exclusively by Chas. Raymond, the Exhibitor.

**Williams' Manufacturing Company**; *Montreal, Q.*

Assortment of Sewing Machines; viz., Single and Double Drop Leaf Single Machines, Plain and Half Case Machines, Hand Machines, &c., varying from $5 to $40 each.

### Class 60.—Apparatus and Processes used in Paper-making, Dyeing and Printing.

Materials and products of the manufacture of pulps for making paper, of wood, straw, alpha, &c.

Processes and products of the bleaching of wood fibre.

Apparatus for making paper by hand and by machinery. Apparatus for pressing, glazing, watering, embossing, and ruling paper. Machines for cutting out, paring, stamping paper, &c.

Apparatus for bleaching and dyeing, and for the preparation of paper and tissues.

Apparatus for printing paper-hangings and tissues. Machines for engraving cylinders for printing.

Materials, apparatus, and products of type-founding, stereotypes, &c.

Machines and apparatus used in typography, stereotyping, copper-plate printing, autography, lithography, chalcography, paniconography, chromo-lithography, &c. Machines for setting up and sorting types. Printing of bank notes, postage stamps, &c.

**Dominion Type Founding Company**; *Montreal, Q.*

Fount of Brevier Type and 25 Founts of Job Type, with specimens of printing therefrom. This Foundry was established in 1830. It manufactures 148 different faces of type, news and book letter, antiques, gothic letters, &c. The foundry is fitted with the most improved machinery. The Government printing establishment at Ottawa was supplied by this foundry, over 40,030 lbs. of type being used. Also the leading newspapers are printed from its type.

### Class 62.—Carriages and Wheelwright's Work.

Separate parts of wheels and carriages; wheels, tires, axles, axle-boxes, iron-work, &c. Springs, and various methods of hanging carriages.

Different systems of harnessing. Breaks.

Wheelwright's work: waggons, tumbrels, drays, and other vehicles for special purposes.

Carriages: public, state, and private carriages; sedan chairs, litters, sledges, &c.; velocipedes.

**Armstrong, J. B.**; Carriage Maker and Wholesale Merchant; *Guelph, O.*

1. One two-seated six-spring "Park Phaeton," with shifting canopy and servant's seat. 2. Assortment of Single-plate Cast Steel Carriage Springs. 3. Carriage Seats formed of Sheet Iron and Wood. The manufacture of carriage springs from a single tapered plate of cast steel is claimed to be nearly new to the carriage trade. They are intended to take the place of a number of layers or plates of steel, which to carry the same weight will weigh more than twice as much. A promising trade has been opened up with Great Britain and Australia.

**Begg, Alexander**; *Orillia, Ontario.*

Light Family Phaeton and Open Phaeton Buggy.

**Dew, John, & Co.**; *St. Catherine's, O.*

Assortment of Patent and other Wheels. Hubs, Spikes, Felloes, and Rims made by machinery. This is claimed to be the only establishment that exhibit complete wheels made by machinery. A large export trade is done by this firm, who have been awarded numerous medals for the excellence of their workmanship.

**De Wolf, John M.**; Carriage Maker; *Halifax, N. S.*

Pony Phaeton, Stanhope and Full Double Waggon. For these vehicles is claimed lightness, style, finish, comfort, strength, and quality of material.

**Gananoque Spring Company**; *Gananoque, O.*

Assortment of Carriage Springs. This factory has been in operation nearly 20 years, and is fitted up with improved machinery.

**Lyons Woods**; Carriage Maker; *Brantford, O.*

Side Bar Shifting Rail Top Piano Box Buggy. Canadian Swell Box Cutter.

**Novelty Works, Jas. Smart**; *Brockville, O.*

Carriage-makers' Hardware:—Carriage Bands, Shaft and Pole Tips, Whip Sockets, &c. *See* Class 17.

**Plummer & Sons**; *London, O.*

Assortment of Shafts, Felloes, and Spokes for Carriages. This manufactory is situated in a district celebrated for producing the best qualities of timber for carriage and waggon work; any required quantity can be supplied on short notice.

**Ramsay, William**; *Orillia, O.*

Family Sleigh.

**Robinson, G. W.**; Carriage Maker; *Kingston, O.*

Trotting Sulky and Portland Cutter.

**Semmens, John**; Children's Carriage Manufacturer; *Hamilton, O.*

Assortment of Children's Carriages, varying in price from $6 to $16.

**Van Staden, W. G. & Company**; *Strathroy, O.*

Samples of Hubs and Spokes for carriages. Hickory and Iron Wood, finished and unfinished. This firm export large quantities of these goods, also Shafts and all kinds of bent work.

## Class 63.—Harness and Saddlery.

Various articles used for carriage horses and saddle horses: pack-saddles, saddles, bridles and harness for saddle horses, beasts of burden, and draught horses; stirrups, spurs, whips.

**Borbridge, S. & H.**; Harness-Makers; *Ottawa, O.*

One set of Carriage Double Harness, gold mounted. One set of Single Harness rubber mounted. For these goods is claimed superior skill, workmanship, and artistic taste. Attention is requested to the manner in which the leather has been raised and the figures produced without weakening the article; also to the design of the work combined with the quality of leather.

**Burrows, Stewart, & Milne**; *Hamilton, O.*

Samples of Saddlers' Hardware, Curry Combs, &c.

**Kraft, Ernest**; Harness-Maker, &c.; *Hamilton, O.*

Set of Gold Mounted Double Carriage Harness. Travelling Trunks (*i.e.*, 1, No. 1, Ladies' Saratoga leather; 1, No. 2, ditto; 1, No. 3, ditto, zinc. Horse Collars, viz., 2, full patent Carriage "Kay" Collar; 1 "Only Pipe;" 1, Russet Carriage "Kay."

**Lugsdin & Barnett**; Harness-makers and Saddlers; *Toronto, Ontario.*

1. Ladies' Saddle, full quilted; 2. Ladies' Saddle with quilted safe and seat; 3. Gentleman's Shafto Saddle; 4. Race Saddle,

**Malcolm, R.**; Inventor of Rivet, Seal, Mail, and Express Bags, Harness-maker, &c.; *Toronto, O.*

Variety of Harness and Saddles. No. 1.—Plain Ladies' Saddles No. 2.—Quilted Safe Lady's Saddle. No. 3.—Quilted Safe and Seat Lady's Saddle. No. 4.—Quilted all over Lady's Saddle, with Doeskin insertions. No. 5.—full White Doeskin Lady's Saddle, with Quilted Safe Seat and Roll Cantle. No. 6.—Full Quilted Doeskin Lady's Saddle, with Roll Cantle, red, white, and blue. Nos. 7. and 8.—Three plain Riding Saddles. No. 9. —Half Shaftoe Saddle. No.10.—Full Shaftoe Saddle No. 1. No. 11.—Ditto. No. 2. No. 12.—Ditto, No. 3. No. 1[illegible] Australian Stockman's Saddle. No. 14.—Australian [illegible] man's Saddle. No. 15.—Canadian Steeplechase Saddl[illegible] No. 16.—Ditto, No. 2. No. 17.—French Ste[illegible] No. 18.—English Steeplechase Saddle. No. [illegible]—Austr[illegible]n Steeplechase Saddle, with Doeskin seat and knee pads. No. 20. Full Quilted Canadian Somerset Saddle. No. 21.—Full Quilted Hunting Saddle, H.R.H. No. 22.—Plain Hunting Saddle. No. 23.—Full Shaftoe Hunting Saddle. No. 24.—Jockey's Saddle. No. 25.—Race Saddle, half Shaftoe. No. 26. —Race Saddle, red, white, and blue. No. 27.—Ditto, blue. No. 28.—Ditto, full Quilted. No. 29.—Ditto, white Doeskin. No. 30.—Ditto, tree. No. 31.—Full Quilted Race Saddle,

H.R.H. Favourite. No. 32.—Double set of Brass mounted Dray Harness. No. 33.—Double set of Scotch Canadian Dray Harness, best Nickle plate mounted.

**Morgan, Bros.**; *Hamilton, Ontario.*

Large and varied assortment of Whips.

**Skinner, S. C. & Co.**; *Gananoque, Ontario.*

Varied assortment of Brass, Iron, Nickle, and Silver-plated Coach, Gig, and Cart Hames.

**Stumbles, John**; *Charlottetown, P. E. I.*

Set Russet Leather Single Carriage Harness.

## CLASS 64.—RAILWAY APPARATUS.

Separate parts: springs, buffers, breaks.

Permanent way: rails, chairs, crossings, switches, fish plates, turn-tables; buffers, feeding cranes, and tanks; optical and acoustic signals.

Permanent way for tramways.

Rolling stock: waggons for passengers, for carrying earth, goods, cattle; locomotives, tenders.

Self-moving carriages; locomotives for roads.

Special tools and machines for the maintenance, repair, and construction of railways.

Apparatus for inclined planes and self-acting planes; apparatus and engines for atmospheric railways; models of engines, of systems of traction, of apparatus appertaining to railways.

Models, plans, and drawings of platforms, stations, and engine houses, and other buildings necessary for the working of railways.

**Chanteloup, E.**; *Montreal, Q.*

Large and varied assortment of Nickel-plated and Brass fittings for Railway Cars, including all the Hardware required in Pullman's Cars, Engineers' Lamps, Guage Lamps, Head Lamps, for Locomotive, Switch Lamps, Conductors' Lamps, Notice Plates, Steam Guage Cocks, Tallow Cups, &c.

**Canada Southern Railway**; W. K. Muir, General Manager *St. Thomas, Ontario.*

Photographs of Canadian Railway Wooden Trestle Bridge, showing construction. Also photos. of Freight Cars running through from the Atlantic to the Pacific, size, 30 ft. long, 7 ft. 4 in. high, 8 ft. 4 in. wide, weight, 9 tons, constructed to carry 15 tons of bulk grain or merchandize.

**Department of Public Works**; *Quebec, Q.*

Two albums of photographs, representing the stations, bridges, and other works now constructed on the Quebec, Montreal, Ottawa and Western line of railway. The works have been carried out under the management of three commissioners, appointed under an Act passed by the Quebec Parliament on the 24th December 1875. Its total length between the extreme points of Quebec and Aylmer, near Ottawa, the capital of Canada, is 326 miles. This total length comprises two

branch lines extending, the first from Three Rivers to the "Grandes Piles" on the river St. Maurice, a distance of 26 miles, and the second from Montreal to St. Jerome, a distance of 13 miles. In connexion with the Canada Central it will be the natural outlet of the Canadian Pacific Railway to the ocean ports of Montreal and Quebec. The works have been carried out by the Government of Quebec in the most substantial manner. Photographs of the following iron bridges, &c. are exhibited :— "Rivière des Prairies" bridge of three arches, one of 200 feet, and two of 150; "Rivière des Mille-Iles" bridge of five arches of 150 feet each; "Belle Rivière" bridge of one arch of 50 feet; "Rivière du Nord," bridge of two arches of 100 feet, end view and side view; "Rivière de l'Oriest" bridge, one arch of 100 feet; "Rivière Calumet" bridge, one arch of 50 feet; "Steam Shovel," loading ballast; "Rivière Range" bridge, in construction of three arches of 150 feet each, two views; "Rivière Range" bridge, completed with train running; "Point-aux-Chèves" bridge, one arch of 50 feet; "Ruisseau au Saumon" bridge, one arch of 50 feet; "Rivière au Saumon" bridge, one arch of 100 feet; "Rivière Nation" bridge of three arches, one of 150 feet, one of 200, one of 100, two views; "Petite Blanche" river bridge, one arch of 50 feet; "Rivière Blanche" bridge, of one arch of 100 feet, with abutments, two views; "Rivière-aux-Lièvres" bridge of four arches, three of 150 feet, one of 100 feet, three views; "Ruisseau Petite Blanche" bridge of one arch; "Rivière Blanche-en-haut" bridge, one arch of 100 feet; "Rivière Gatineau" bridge of four arches of 200 feet each, two views; Nochelaga Station; Coteau St. Louis Station; Culverts, five views; City of Montreal; "Rivière Jacques-Cartier" bridge of two arches, one of 164 feet, one of 143; "Rivière Port Neuf" bridge of 3 arches, two of 149 feet, one of 80 feet; "Rivière St. Anne" bridge of seven arches, six of 150 feet, one of 129 feet; "Rivière Batiscan" bridge of 5 arches, four of 158 feet, one swing bridge, 132 feet; "Rivière St. Maurice" bridge of five arches of 215 feet each, two views; "Rivière St. Charles" bridge of one arch of 40 feet; "Culverts" six views.—(J. E. Livernois, Photographer, Quebec.)

**Grand Trunk Railway**; *Montreal, Q.*

Photographs and Plans of Railways and Bridge.—Victoria tubular bridge across the River St. Lawrence at Montreal, erected for the Grand Trunk Railway Company of Canada. Commenced 20th July 1854, opened for traffic 17th December 1859. Working season, May to November. Length from shore to shore, 9,184 lineal feet; 25 spans, 24 of 244 feet, one of 330 feet. Height from surface of water to underside of centre tube, 60 feet. Height from bed of river to top of centre tube 108 feet, greatest depth of water, 22 feet, current seven miles per hour. 3,000,000 cubic feet of masonry; 8,230 tons of iron in tubes; 2½,000,000 of rivets; 30 superficial acres of painting surface on tubes. Force employed in construction at one time during summer of 1858, 3,040 men, 142 horses, and four locomotives. 2. *Victoria Bridge*, with a View of the City of Montreal from centre pier. 3. International bridge across the Niagara River at Buffalo. Commenced May 1870, opened for traffic 3rd November 1873. Length from shore to shore 3,650 feet, 12 spans, three of 240 feet each, one of 215 feet, four of 190 feet each, one swing with two openings

of 90 feet each, (length over all 218 feet); both swings are worked by steam power. Current averages 8 miles per hour in centre of river. Greatest depth of water 45 feet. Height of rail level above surface of water 22 feet. Height from top of bridge to bottom of river 87 feet.

**Great Western Railroad**; *Hamilton, O.*

Map of part of the Province of Ontario, showing the Route of Great Western Railway, with Explanatory Tables showing the quantities of Natural and Manufactured Products transported on their line of railway; also Photographs of Workshops, Stations, Freight Cars, Ferry Boats, &c.

**McDougall, John, & Co.**; *Montreal, Q.*

Car and Engine Wheels, 24′, 28″, 30′, 33″, and 36″ diam., at $9, $11, $11 50, $12 and $15.

**Van Staden, W. G.**; *Strathroy, Ontario.*

Model of a Patent Railway Car. The Patentee claims that by the substitution of bent ribs instead of the ordinary morticed framework, the car is stronger, cheaper, and lighter than ordinary cars.

## CLASS 65.—TELEGRAPHIC APPARATUS FOR PROCESSES.

Appliances for telegraphs based on the transmission of light, sound, &c.

Apparatus for the electric telegraph, posts, wires, stretchers, &c.

Batteries and apparatus for sending and receiving messages.

Bells and electric signals.

Telegraphs for military purposes. Objects appertaining to telegraphy: lightning conductors, commutators, prepared paper for printing messages, and for sending autographic messages.

Special apparatus for pneumatic telegraphy.

**Chanteloup, E.**; *Montreal, Q.*

Telegraph Instruments, &c. (1.) Learner's Instruments, $5 each; (2.) Register (complete), $39 75c.; (3.) Sounder, $8 00; (4.) Cut-out Switch, $2 50c.; (5.) Relay, $16; (6.) Operator's Key, $4 50c.; (7.) The Fire Alarm Telegraph, consisting of a signal box, fire alarm, gong, and pricker. The signal box is double. On opening the outside of this door, a second one with a copper hook is found within, on opening which the movements are displayed. One of the principal parts consists of a lever, having at the extremity a small iron brace, placed in position towards the bottom of the box. On this brace is suspended a small weight. This weight being adjusted, the second door can be closed, and the apparatus tried by pulling the copper hook down the groove hollowed out in the door. The machinery in good working order should sound the number 56 five times. The large bell does not require to be wound up, only to have its weight suspended to the cord. Alarms should be given as directed on the dial. The machinery for fire alarm, fitted with a bell-hammer, should be arranged thus: A rod from the pile goes straight to the box, passes the electro magnet, and out of the box to reach the bell. After having crossed the bell it is conducted to a relay

near the unfastener, crosses the relay, and returns to the other rod of the pile. The relay then works the local battery of the striking apparatus. This pile has one of its poles attached to the relay, from the relay it goes to the unfastening apparatus, and from thence returns to the other pole of the piles.

**Potter, Chas.**; *Toronto, O.*

Electric Fire Alarm Gong, price $40. Electric House Bell Annunciator, $38. Pair of Telephone Call Bells, $20. (*Trophy.*) *See also* Class 15.

## Class 66.—Apparatus and Processes of Civil Engineering, Public Works, and Architecture.

Building materials: stone, wood, metals; ornamental stone; lime, mortar, cements, artificial stone and concrete; roofing tiles, bricks, paving tiles; slates, pasteboard and felt for roofing.

Apparatus and products of processes used in the preservation of wood. Apparatus and instruments for testing building materials.

Apparatus for earthworks, excavators. Apparatus used in building yards. Tools and processes used by stone-dressers and cutters, masons, carpenters, tilers, blacksmiths, joiners, glaziers, plumbers, house painters, &c.

Locksmiths' work; locks, padlocks, railings, balconies, bannisters, &c.

Apparatus and engines used in making foundations: pile-drivers and pile work, screw piles, pumps, pneumatic apparatus, dredging machines, &c. Apparatus used in hydraulic works connected with harbours, canals, rivers.

Apparatus used in the supply of water and of gas. Apparatus used in the maintenance of roads, plantations, and public walks.

Models, plans, and drawings of public works; bridges, viaducts, aqueducts, drains, canal bridges, dams, weirs, &c.

Lighthouses. Public buildings for special purposes; buildings for civil purposes; mansions and houses for letting; workmen's towns, industrial dwellings, &c.

**Department of Public Works, Ottawa**; Hon. Alex. Mackenzie, Premier of the Dominion; *Ottawa, O.*

1 and 2. Models of the Welland and Lachine Canals. The canals of Canada on the line of the St. Lawrence Navigation between Lake Erie and Montreal are now in course of enlargement, at an estimated cost of over $30,000,000, with locks 270 feet long between the gates, 45 feet width of chamber, and depth of water 14 feet. The lifts are variable, but in many cases are 13 feet and over. The mean width of waterway is 125 to 150 feet. The enlarged canals will pass vessels of 1,500 tons. The gates are constructed of solid timber laid horizontally one upon the other. Oak forms the outline, and the filling in is of pine lighter than water, making the gate easy to handle. The upper gates are upon the same level as the lower ones, and the lock is filled and emptied entirely through the gates. 3. Chart of Lachine Canal, connecting Lake St. Louis and the Harbour of Montreal on the River St. Lawrence; mean difference of level between lake and harbour, 45 feet; length of

canal, 8¾ miles; 5 locks, each 270 feet long, 45 feet wide, in course of enlargement by the Department of Public Works. This chart also shows: 1. The Boat Canal, formed last century, viâ River St. Pierre to Montreal. Depth of water, 2½ feet. 2. The Barge Canal. Commenced in 1821, and completed in 1825. Cost $438,404. Length, 8¼ miles; lockage, 44½ feet. Bottom width, 28 feet; at water surface, 48 feet; 7 locks, 100 feet long, 20 feet wide, with 4½ feet depth of water on sills. 3. The Ship Canal. Commenced in 1843, and completed in 1849. Cost $2,149,128. Length, 8½ miles; lockage, 44¾ feet; bottom width, 80 feet, at water surface, 120 feet; 5 locks, 200 feet long, 45 feet wide, with 9 feet depth of water on sills. 4th. Enlarged Ship Canal. Commenced in 1875; probable cost, $6,500,000. Length, 8¾ miles; lockage, 45 feet; summit level, Lachine to Cote St. Paul, 5¾ miles long; mean width, 150 feet. Reaches downwards to Montreal, 3 miles; mean width 200 feet, intended depth, 15 feet. 5 locks 270 feet long, 45 feet wide, three of which have 14 feet depth of water on the sills, and two at the lower entrance, together with adjoining basins, between Grand Trunk Railway at Point St. Charles and harbour of Montreal, are adapted to vessels of eighteen feet draught. 5 swing bridges on piers of cut stone, having an opening 46 feet wide on each side of centre, for passage of vessels, and a waterway 32 feet wide on both sides of canal. Lock walls throughout, also the basin and dockwalls for one mile above lower terminus, are of cut stone laid in hydraulic cement mortar. Thence upwards for half a mile, the dockwalls are of random-coursed masonry laid in cement mortar. Between the third and fourth locks, a distance of 1½ miles, the side-walls are of random-coursed stone laid at right angles to a face inclination of two-thirds to one. Summit level, for 4½ miles faced on both sides with masonry. Entrance on Lake St. Louis formed of cribwork, on which is to be built a superstructure of masonry. 4. Plan of River St. Lawrence from Kingston to Montreal, showing the canals and other works executed by the Government of Canada, for the improvements of navigation between those points, prepared by the order of the Harbour Commissioners of Montreal. 5. Plan of the River St. Lawrence between Montreal and Quebec, showing the works executed in deepening and improving the ship canal. Prepared by the order of the Harbour Commissioner of Montreal.

**Gauvreau & Co.**; *Quebec, Q.*

Samples of Hydraulic Cement.

**Geological Survey of Canada**; A. R. C. Selwyn; *Montreal, Q.*

Collection of Marbles and Building Stones.

**Heard, John & Co.**; *Strathroy, O.*

Keystone of patent Sandstone. Price $2.

**Keefer, Samuel**; M. Inst. C. E.; *Brockville, O.*

View and details of Clifton Suspension Bridge, Niagara Falls. Erected in 1868. The span between centre of towers is 1,268 feet, the longest span of any in use at the present time. The

length of suspended roadway is 1,190 feet. The height of bridge over water is 190 feet and the depth of water under the bridge is 180 feet. The height of towers : East side, 100 feet, west side, 105 feet. The effective supporting strength of each tower is 1,056 tons. This bridge cost only 40,000*l.* sterling.

**Porter, William**; *Rochersterville, O.*

Specimen of Wood Block Pavement. Suitable for roads, bridges, side-walks, &c. The blocks are previously saturated with lime to prevent rot, laid down by sections, and may be covered with asphalte. The pavement can be made to any width, and as no nails are used in the manufacture, frost cannot affect or displace the blocks. This patent has been used in the city of Ottawa, and gives satisfaction. (*Trophy.*)

**Spencer, L. B.**; *Kingston, O.*

Assortment of Porcelain and Mineral Door Knobs, Window Bolt Knobs, Sash Pulleys, Latches, and Locks.

**Wilson, John**; *Oshawa, O.*

Sample Bricks.

### Class 67.—Navigation and Life-saving.

Drawings and models of slips, graving docks, floating docks, &c.

Drawings and models of vessels of all kinds, sea-going and for rivers. Models of the systems of ship-building adopted in the navy.

Boats and barges.

Materials for the rigging of ships.

Flags and signals. Apparatus for the prevention of collisions at sea. Buoys, beacons, &c.

Apparatus for swimming, diving, and life-saving exhibited in action; floats, swimming belts, &c. Diving belts, cork jackets, nautilus life-belts, &c. Submarine boats; apparatus for saving life at sea, rocket apparatus, life-boats, &c. Apparatus of all kinds used for saving life from fires and other accidents.

Pleasure boats, yachts, &c.

**Commissioner of Agriculture & Public Works**; *Quebec.*

27 Models of Sloops, Clippers, Schooners, Barques, and Ships, tonnage varying from 150 to 2,250 tons, being a collection of the various classes of vessels built at the port of Quebec.

**Canada Shipping Company**; *Montreal, Q.*

Model of Lake Steamer. Length, 320 feet; breadth, 35 feet; depth, 26 feet; tonnage, gross, 22,100; engines, H.P., 2,500.

**Duval, E. H.**; *Quebec.*

Models of Double-action Combination Ship Pump, price 200. This Pump can be used for removing bilge water, washing the deck, or as a fire-engine. By its combination action a continuous suction and discharge through its double action-cylinder is maintained, and it is stated to be a convenience to shipowners in not requiring a store room, besides giving safety to vessels and cargo.

**English, William**; *Peterborough, O.*

Painted Iron-fastened Hunting Canoe, price $25. Varnished Copper-fastened Hunting Canoe, price $35. These Canoes are made of thin wood on oak ribs, nailed on with tough iron or copper nails. Their lightness and strength render them of great value in navigating rivers with portages, &c. A Canoe weighing less than 70 lbs. will carry six men. They have been sent to Southern States, Italy, Norway, England, &c. and in all cases have given satisfaction.

**Herald, Daniel**; *Gore's Landing, O.*

Hunting Canoe with Paddles.

**Mosher, George J.**; *Maitland, N. S.*

Ship Model, price $10, and Ship Steering Wheel, price $50.

**McCorkill, A.**; *Kingston, O.*

Pleasure Boat, made from Canadian Timber, viz., Red Cedar, White Cedar, Oak and Curly Maple, with back-board and rudder, two pair sculls and rowlocks, price $150.

**Power, William, & Co.**; Ship Builders; *Kingston, O.*

Models of Ship, Schooner, and Schooner Yacht. Awarded, at Paris Exhibition in 1855, in the name of T. C. Lee, Quebec, for whom the ship was built, 1st prize, over 300 competitors, for Model of Ship. This firm build Lake and River Steamers, Ocean Steamers, &c. They supply a large number of Ocean Vessels for various parts in Europe.

**Richelieu & Ontario Navigation Co.**; *Montreal, Q.*

Models of Several Steamboats now running on Canadian Lakes.

Class 68 Material & Apparatus for Military Purposes,
J Perrault — see p 149.

# SEVENTH GROUP.

## ALIMENTARY PRODUCTS.

### Class 69.—Cereals, Farinaceous Products, and Products derived from them.

Wheat, rye, barley, rice, maize, millet, and other cereals in grain and in flour.

Grain without husks, and groats.

Fecula from potatoes, rice, lentils, &c., gluten.

Tapioca, sago, arrowroot, cassava, and other fecula, compound farinaceous products, &c.

Italian pastes, semolina, vermicelli, maccaroni.

Alimentary preparations as substitutes for bread, home-made paste, &c.

Note.—*The small samples in this Class were entered together as a collective exhibit, and received the Diploma of Honour.*

**Arts & Agricultural Association of Ontario**; *Toronto, O.*
Samples of Cereals.

**Aylmer Agricultural Society**; *Aylmer, O.*
Samples of Corn.

**Arbuckle, John**; *Pictou, N. S.*
Sample of Spring Wheat, "Redfern."

**Adair, J.**; *Westminster, O.*
Sample of Peas.

**Alexander, J. L.**; *Huntley, O.*
Black Oats.

**Agricultural Society**; *Ottawa, O.*
Samples of Cereals.

**Agricultural Society**; *Guelph, O.*
Samples of Cereals.

**Alres, James**; *Carling, Parry Sound District, O.*
Sample of Peas, Corn, &c.

**Brown, R.**; *Saanich, B. C.*
Sample of wheat, 66 lbs. per bushel.

**Brewer, —**; *Vancouver Island.*
Sample of Barley.

**Bethel, N.**; *Thorold, O.*
Sample of Grass Seed.

**Blair, R.**; *Carling, Parry Sound District, O.*
Spring Wheat.

**Bennet, P.**; *Kamloops, B.C.*
Sample of Wheat.

**Bagnall, Richard E.**; *New Glasgow, ~~P. E. I.~~* 2.
Sample of Oatmeal.

**Beamish, Francis**; *Port Hope, O.*
Sample of Canadian White Wheat Flour.

**Bell, Richard**; *Charlottetown, P. E. I.*
Indian Corn.

**Byfield, James**; *Highfield, O.*
Dominion Wheat, 63 lbs. per bushel, 30 bushels per acre.

**Bell, William**; *Hensall, O.*
Sample of Clawson Wheat, 64 lbs. per bushel.

**Bullman, Christopher**; *Rustico, P. E. I.*
White Wheat, Two-rowed Barley, and White Oats.

400 **Bullman, Thomas**; *Rustico, P. E. I.*
Four-rowed Barley, Black Oats.

**Buckerfield, W. H.**; *Morrison, Muskoka District.*
Corn on Stalk, &c.

**Brock, L.**; *Brucefield, O.*
Sample of Oats and Indian Corn, 44 lbs. per bushel.

**Badger, James**; *McDougall, Parry Sound District, O.*
Sample of Beans.

**Baker, George**; *Simcoe, O.*
Sample of Red-blaized Corn, 56 lbs. per bushel. White Oats 46 lbs. per bushel, price, 75 cts., quantity per acre, 50 bushels. Black Eye Marrowfat Peas, 64 lbs. per bushel, price $1, 40 bushels per acre. Wheat, Barley.

**Buchanan, John G.**; *Colchester, O.*
Sample of Wheat, 60 lbs. per bushel.

**Baldwin, W. G.**; *Colchester, O.*
Sample of Clawson Wheat, 65 lbs. per bushel, and Yellow Gourd Corn, 70 bushels per acre.

**Ballantyne, John**; *Pine River, O.*
New Zealand Oats, 40 lbs. per bushel, 65 bushels per acre.

**Brodie & Harvey**; *Montreal, Q.*
Samples of Flour and Wheat. Self-raising Flour (Farine Préparé). This is a convenient and palatable mode of restoring phosphates where they may be wanting, besides being a handy and reliable means of making all kinds of bread or cakes with a uniformly excellent result. At the Centennial Exhibition, 1876, it was awarded a medal and the following certificate by the judges:—"(1.) It produces a light, porous, and very digestible bread, without the loss attendant on fermentation, which is greater than the additional cost of self-raising flour. (2.) Should there be a deficiency of phosphate in the diet, the material used in this bread will supply that defect."

**Cartwright, John T.**; *Durham, O.*
Bearded Wheat, 63 lbs. per bushel, 32 bushels per acre.

**Carruthers, J. M.**; *Haldimand, O.*
Six-rowed Barley and Eldorado Spring Wheat.

**Carroll, Patrick**; *Colborne, O.*
Marrowfat Peas.

**Crawford, J.**; McKellar; *Parry Sound District, O.*
Sample of Spring Rye.

**Cade, Robt.**; *Middlesex, O.*
Samples of Indian Corn and Oats.

**Campbell, Alexander**; *Cashmere, O.*
Golden Medal Wheat, 64 lbs. per bushel.

**Catelli, Bros.**; *Montreal, Q.*
Samples of Macaroni, Vermicelli, and Italian paste, manufactured from the finest hard Wheat.

**Cochrane, Andrew**; *Ramsay, O.*
Scotch or Fyfe Wheat, 66 lbs. per bushel, ditto, with stalks.

**Commissioner of Agriculture**; *Quebec, Q.*
Collection of 56 samples of Wheat, Barley, Oats, Beans, Buckwheat, Grass Seeds, &c.

**Canning, John**; *Morrison, Muskoka District, O.*
Spring Wheat and Black Oats.

**Coutlee, Thos.**; *Almonte, O.*
Samples of Wheat and Barley in Straw, and Cleaned Grain.

**Charters, Robert**; *Tuckersmith, O.*
White Peas, 64 lbs. per bushel, 50 bushels per acre.

**Cowie, James**; *Bayfield, O.*
Spring Wheat, 62 lbs. per bushel, 36 bushels per acre.

**Charters, Robert**; *Egmond, O.*
Large White Peas, 64 lbs. per bushel.

**Craig, William**; *Rosetta, O.*
Sample of Delhi Wheat, 63 lbs. per bushel, 42 bushels per acre.

**Creasor, G.**; *Watt, Muskoka District, O.*
Peas.

**Corn Exchange Association**; *Toronto, O.*
Samples of Cereals.

**Couse, John**; *Wyoming, O.*
Sample of Beans.

**Carter, W.**; *Victoria, B. C.*
Sample of White Peas and Oats.

**Duck & Pringle**; *South Thompson, B. C.*
Sample of Oats.

**Dormain, D. E.**; *N. Westminster, B. C.*
Winter Wheat.

**Dawes, Samuel**; *Whitby, O.*
Fall Chili Wheat. Marrowfat Peas, 60 lbs. per bushel. Daniel O'Rourke Peas, 60 lbs. per bushel. Spring Fyfe Wheat. Delhi Fall Wheat.

**Dickson, James**; *Tuckersmith, O.*
Sample of Timothy Seed. Field Peas.

**Darson, H.**; *London, O.*
Barley.

**Downes, S., & Co.**; *Australian Ranche, B. C.*
Wheat. Oats. Barley.

**Doolittle, A.**; *Morrison, Muskoka District, O.*
Beans—Cranberry.

**Esplen, David**; *Burgoyne, O.*
Treadwell Fall and Spring Wheat, 62 lbs. per bushel.

**Evaris, J.**; *Cowichan, B. C.*
White Oats.

**Eaglison, Wm.**; *Hamilton, O.*
Club Spring Wheat.

**Emigration Department of Ontario**; *Toronto O.*
Specimens of Wheat, Barley, Oats, Maize, Beans, Peas, &c. from the Parry Sound and Muskoka Free Grant Lands. Heads of families get a grant of 200 acres of land, and each member of his family over 18 years of age 100 acres, and additional land at 50 cents per acre cash. The conditions on which the land is granted are, residence on the lot at least six months a year, that there shall be cleared in five years at least 15 acres, and during each year not less than two acres. At the end of five years the deed will be issued. A homestead law provides that if the first settler or his heirs remain on the land it cannot be seized for debt for 20 years. The climate is healthy, several good roads, abundance of timber, including pine, maple, basswood, elm, beech, &c. Game is very plentiful, especially deer and partridges, and the lakes and rivers abound with choice fish. *See also* Class 72.

**Fisher, W.**; *New Westminster B. C.*
Sample of Beans.

**Fraser, Alex.**; *Watt, Muskoka District, O.*
Club Wheat and Timothy Seed.

**Farrington, S.**; *Foley, Parry Sound District, O.*
Sample of Beans.

**Fleming, G. B.**; *Cashmere O.*
Norway Oats, 36 lbs. bushel.

**Foster, Charles**; *East Flamborough O.*
Spring Rye.

**Furber, W.**; *Parry Sound, O.*
Wheat, 60 lbs. bushel. Rye.

**Genral, P. M.**; *Ottawa O.*
White Oats.

**Gillie, Paul, J.**; *Lakeview, Nicola B. C.*
Wheat, 1,400 lbs. per acre.

**Grant, Chas.**; *Thornbury, O.*
Grain in Straw. Fyfe Spring Wheat, Egyptian Wheat, Barley.

**Geddes, W.**; *Caradoc, O.*
Samples of Buckwheat.

**Gent, Walter**; *Otley, O.*
Samples of Lock Wheat, 60 lbs. bushel.

**Gerrie & Bathgate**; *Winnipeg, Manitoba.*
Fyfe Wheat.

**Grubb, Walter**; *Essex, O.*
Indian Corn, 60 lbs. bushel, 50 bushel per acre.

**Graham, William**; *Watt, Muskoka District, O.*
White Oats and Red Chaff Wheat.

**Hind, W. A.**; McKillop ; *Parry Sound, O.*
Scotch Wheat and Red Heart Beans, and Six Row Barley.

**Hamilton, Dr. C. C.**; *Cornwallis, N. S.*
Winter Wheat.

**Haythorne, Hon. R. P.**; *Marshfield, P. E. I.*
Buck Wheat.

**Healey, Augustus**; *Watt, Muskoka District, O.*
Black Oats.

**Hughes, James**; *Cone Head P. E. I.*
Field Peas.

**Hurd, W. A.**; McKellar ; *Parry Sound District, O.*
Six Rowed Barley, Scotch Spring Wheat, and Red Heart Beans.

**Henderson, David**; *Huron, O.*
Barley, 55 lbs. per bushel, 50 bushel per acre.

**Howland, W. P., & Co.**; *Toronto, O.*
Snowdrops Patent Process Flour.

**Harkney, Joseph**; *Lambton, O.*
Peas, 62 lbs. per bushel.

**Hunt, Bros.**; *London, O.*
Barrel of Flour, made from Canadian White Wheat.

**Hadden, John**; *Moore, O.*
Sample of Fall Wheat, 60 lbs. bushel, 40 bushels per acre.

**Huffman, Cyrus B.**; *Bath, O.*
Sample of Barley, 53 lbs. bushel, 40 bushes acre, Wheat.

**Higgins & Young**; *Winnepeg, Manitoba.*
Golden Drop Wheat.

**Hambly, R.**; *Loboc, O.*
Red Winter Wheat.

**Hanks, F. F.**; *Springfield, B.C.*
Sample of Fall Wheat sown July 1873, harvested August 1874. Latitude 53°.

**Iona Agricultural Society**; *Middlesex, O.*
Six ~~Pound~~ Barley, 51 lbs. per bushel. Norway Oats, 36 lbs. per bushel. Golden Medal Wheat.

**Jones, Alex.**; *Seal River, P. E. I.*
Norway Oats.

**Jones & Mellor**, *Victoria, B. C.*
Wheat. Grounds are elevated at 2,380 feet and without irrigation.

**Jones, E. A.**; *Plympton, O.*
Field Peas, 66 lbs. bushel, 30 bushel per acre.

**Kirkland, Samuel**; *Teeswater, O.*
Treadwell Wheat, 63 lbs. bushel, 30 bushels per acre.

**Kennedy, John**; *Burns, O.*
Black Oats.

**Kay, Wm.**; *Watt, Muskoka District, O.*
Barley, Wheat.

**Lotarro, L.**; *Fountain, B. C.*
Sample of Wheat.

**Lumbley, B.**; *Spalbuncheen, B. C.*
Samples of Barley, from a prairie field of nine acres; yield 19,500 lbs., broken in spring, imperfectly harrowed and without irrigation. Samples of Oats from a field of 24 acres, yield 2,600 lbs. seventh year of cultivation, without manure or irrigation.

**Leidster, Joshua**; *Bothwell, O.*
Barley and White Beans, 62 lbs. bushel, 30 bushels per acre.

**Lightfoot, Thomas**; *Metcalf, O.*
Samples of Spring Wheat.

**Longsdale, P.**; *Headingly, M.*
Samples of Oats, 70 bushels to acre.

**Marshall, Thomas**; *Vittoria, O.*
Sample of Delhi Wheat, 61 lbs. bushel, 30 bushels per acre.

**Mission**; *Fort Chipweyan, B. C.*
Samples of Wheat, Barley, and Oats.

**Macoun, Prof.**; *Belleville, O.*
Specimens of Barley from Lake Athabaska.

**Marlow, N.**; *Cartwright, O.*
Club Spring Wheat, 62 lbs. bushel.

**Mowbray, William**; *Sarnia, O.*
Fall Wheat, 60 lbs. per bushel.

**Meadows, Mathew**; *Normanby, O.*
Sample of Treadwell and White Wheat, 65 lbs. bushel.

**Madden, William**; *Napanee, O.*
Sample of Fyfe Wheat, 65 lbs. per bushel, 40 bushels per acre.

**Moore & Bros.**; *Nicola Lake, B. C.*
Red Chaff Wheat.

**Milne, G.**; McDougall; *Parry Sound District, O.*
Sample of Black Oats.

**Minister of Agriculture**; *Ottawa, O.*
Samples of Cereals from British Columbia, Manitoba, Ontario, Quebec, and Nova Scotia.

**Mearus, Mathew**; *Normanby, O.*
Treadwell Wheat, 40 bushels per acre.

**Manderson, Thomas**; *Myrtle, O.*
Spring Club Wheat, 60 lbs. bushel. Surprise White Oats. Golden Vine Peas, and Fall Wheat (Delhi). Fyfe Spring Wheat.

**Muirhead & Gray**; *London, O.*
Samples of Oatmeal and Split Peas. This firm ships largely to England and Scotland.

**Murphy, Peter**; *Portage, P.E.I.*
Red Wheat.

**Murcer, Murray**; *Town Gut, Pictou, N.S.*
Buckwheat.

**McDonald, Donald**; *Cape John, Pictou, N. S.*
Samples of Barley and Yellow oats.

**McDougall, Duncan**; *Westminster, O.*
Samples of Peas.

**McNamee**; McKellar; *Parry Sound District, O.*
White Flint Corn.

**McTavish, J.**; *Little Saskatatchan, B. C.*
Fyfe Wheat.

**McRae, Alex.**; *Lot* 49, *P. E. I.*
White Beans.

500

**McRae, Alex.**; *Teeswater, O.*
Bald Winter Wheat, 66 lbs. bushel.

**McAigur, Hugh**; *Teeswater, O.*
Treadwell Wheat, 66 lbs. bushel, 45 bushel per acre.

**McKenzie, Hugh**; *Teeswater, O.*
Winter Wheat. Treadwell, 65 lbs. bushell.

**McKay, Thos. & Co.**; *Ottawa, O.*
Five samples of Oatmeal. This meal is high dried, will keep well in warm weather, is shipped largely to Liverpool.

**McFarland, D.**; *Carling, Parry Sound District, O.*
Samples of Barley, Fall Wheat, White Oats.

**Nichol, Edward**; *Adelaide, O.*
Sample of Barley.

**Okanagai Mission**, *B. C.*
Beans.

**O'Neil, Wm. P.**; *Waterdown, O.*
Sample of Seneca, 64 lbs. bushel. Wheat and Delhi Wheat, 63 lb. bushel, 25 bushels per acre.

**Oxford Union Exhibition**; *Oxford, O.*
Samples of Cereals.

**Patterson, Robert**; *Durham, Pictou, N. S.*
Sample of Black Oats.

**Peirson, Joseph**; *Consecon, O.*
Samples of Six-rowed Barley and Black-eye Marrowfat Peas.

**Plaiton, Smith & Son**; *Kertch, O.*
Sample of Delhi Wheat, 60 lbs. bushel, and Peruvian Oats, 40 lbs. bushel.

**Pollock, John**; *Pine River, O.*
Fyfe Spring Wheat, 63 lbs. bushels, 35 bushels per acre.

**Paul, John**; *Ramsay, O.*
Sample of Barley, 48 lbs. bushel, ditto with Stalks.

**Phillips, George**; *London, O.*
Barrel of Forest City Flour.

**Puzey, Thomas**; *Simcoe, O.*
Treadwell Wheat. Red Wheat, 63 lbs. bushel, price $1 50 quantity per acre 25 bushels. Black Oats, 39 lbs. bushel, price 50 cents, quantity per acre 35 bushels.

**Railton, Smith, & Son**; *Lambton.*

Wheat, 60 lbs. per bushel (40 bushels per acre); Peruvian Oats.

**Rease, W.**; *Saanich, B. C.*

M lt, and Chevalier Barley.

**Rennie, William**; Wholesale and Retail Seedsman; *Toronto, O.*

Collection of 100 varieties of Field and Garden Seeds, Grain in Straw, &c., including the Cereals and Grasses, and the ordinary Garden Seeds. Special attention is directed in this collection to the varieties of Garden Peas, for which the exhibitor claims excellence and purity; also that they are early and hardy. Mr. Rennie exports largely the seeds grown by himself to England and the United States. The adv. ıtages to exporters are the rapidity of growth and maturity of Canadian Seeds; it having been proved that Cereal and Vegetable Seeds grown in a climate where the season is short will mature ten or twelve days earlier than similar seeds grown in a country where the season is much longer.

**Riddle, W.**; *Hamilton, O.*

Sample of White Beans, Black Peas, Two-rowed Barley, 56 lbs. bushel.

**Riddle, Walter**, *Cobourg, O.*

Clawson Wheat, 63 lbs. bushel.

**Riske, L. W.**; *Chilcotin, B. C.*

Wheat from elevation of 2,400 feet.

**Ross, Chas.**; *Grovesend, O.*

Samples of Indian Corn.

**Smith, Abraham**; *Simcoe, O.*

Treadwell Wheat, 64 lbs. bushel. Price $1 50. 30 bushels per Acre.

**Smith, W.**; *Vancouver's Island, B. C.*

Fall Wheat.

**Smith, Wm.**; *Fairfield Plans, O.*

Millet, Hungarian Grass, and Buckwheat.

**Stock, T.**; *Waterdown, O.*

Fall Wheat.

**Scott, John**; *North River, P. E. I.*

Timothy Seed.

**Scott, William**; *London, O.*

Samples of Wheat.

**Scott, F.**; *Highgate.*

Marrowfat White Beans.

**Selwyn, Alfred, R.E., F.R.S.**; *Montreal, Q.*
Samples of Grain from British Columba.

**Sentiner, John**; *Earl River, P. E. I.*
Pearl Barley.

**Sheoch, James**; *Coronna, O.*
Samples of Barley, 50 lbs. bushel, 35 bushels per acre; and Oats, 40 lbs. bushel.

**Simmers, J. A.**; *Toronto, O.*
Collection of 54 varieties of Seeds and Grains, exhibited for the purpose of showing the perfection at which all kinds of seeds can be grown in Canada, and that they are valuable for exportation.

**Sinclair, James**; *Croft, Parry Sound District, O.*
Australian White Oats.

**Skinner, T. J.**; *Evenshene, B. C.*
Wheat, 66 lbs. bushel.

**Smalley, H.**; *Watt, Muskoka District, O.*
Samples of Barley.

**Sparks, George**; *Bayfield, O.*
Barley, 54 lbs. bushel. Price 50 cents. Quantity per acre, 55 bushels.

**Sparks, George**; *Sharsley, O.*
Blue Stem Wheat, weight 63 lbs. Price $1; quantity per acre, 35 bushels.

**Stackney, Joseph**; *Moore, O.*
Samples of Peas.

**Steele, James**; *Amberley, O.*
White Flint Wheat. 63 lbs. bushel, 40 bushels per acre.

**Stretch, Jos.**; *West River, P. E. I.*
Horse Beans.

**Surveyor-General, Manitoba.**
Wheat.

**Taylor, George**; *Gananoque, O.*
Samples of Wheat, Barley, Oats, Peas, and Rye.

**Tims, Thomas**; *Oxley, O.*
Sample of Winter Wheat, 63 lbs. per bushel.

**Tippin, William**; *Arkwright, O.*
Samples of Glasgow Spring Wheat, 64 lbs. bushel; Surprise Oats, 40 lbs. bushel; and Red Fern Spring Wheat, 64 lbs. bushel.

**Tolme, W. F.**; *Victoria, B. C.*
Wheat. 72 bushels of this wheat were obtained from 4,576 square yards of ground, being 273 square yards less than an acre.

**Trayer, —**; *Chilliwack, B. C.*
Sample of Wheat.

**Trueman, John**; *Metcalf, O.*
Samples of Fall Wheat.

**Tyndal, Robert**; *Perth, O.*
Scott Wheat, 68 lbs. bushel, 38 bushels per acre.

**Tyndal, Robert**; *Newry, O.*
Sample of Scott Wheat, 65 lbs. bushel.

**Tuck, Wm.**; *Nelson, O.*
Sample of Winter Wheat.

**Vernon, C.**; *O. Kanaghan, B. C.*
Samples of Wheat and Oats.

**Werlington, John**; *Hamilton, O.*
Black Oats.

**Wicher, Herman**; *Spallumchun, B. C.*
Sample of Barley.

**Wilson, Thos.**; *Kincardine, O.*
Crown Peas, 64 lbs. bushel; 35 bushels per acre.

**Wright, Benjamin**; *Charlottetown, P. E. I.*
Samples of Split Peas.

**Wright & Butterfield**; *Sandwich, O.*
Samples of Indian Corn in Cob.

**Wright, Thos.**; *Watt, Muskoka District, O.*
Peas, and White Oats.

**Young & Fursteman**; *Spallumchun, B. C.*
Mixed Wheat.

**Young, M.**; *Morrison, Muskoka District, O.*
Sample of Peas.

### Class 71.—Fatty Substances used as Food. Milk and Eggs.

Fatty substances and oils good for food.
Fish and preserved milk; fresh and salt butter; cheese.
Eggs of all kinds.

**Betcher, J. W.**; *Halifax, N. S.*
Eggs preserved by a new process.

**Canada Cheese Agency**; L. S. Garnier, Manager; *Montreal, Q.*; *Paris address*, 18, *Bis Rue d'Hauteville.*
Assortment of Canadian Cheese.

### Class 72.—Meat and Fish.

Salt meat of all kinds. Meats preserved by various processes.
Meat and soup cakes. Hams and prepared meats.
Poultry and game.

Salt fish, fish in barrels; cod, herrings, &c.; fish preserved in oil; sardines, tunny, &c.

Crustacea and shell fish: lobsters, shrimps, oysters, potted oysters, anchovies, &c.

**Andrews & Co.**; *Halifax, N. S.*
Canned Lobster.

**Argyle Packing Company**; *Argyle, N. S.*
Canned Lobsters.

**British Columbia Advisory Board**; *B. C.*
Pemmican (Meat dried in the sun).

**Bain, James D.**; *Restigouche, N. B.*
Canned Salmon, Lobster, and Mackerel.

**Barber, J.**; *Halifax, N. S.*
Canned Lobsters.

**Betcher, W. J.**; *Halifax, N. S.*
Bacon and Hams.

**Christian, N. O.**; *Halifax, N. S.*
Canned Lobsters.

**Forrest & Co.**; *Halifax, N. S.*
Canned Lobsters.

**Fisheries Department**; *Tadousac, Q.*
Collection of Stuffed Food Fishes.

**Gilchrist, Chas.**; Fishery Overseer; *Port Hope, O.*
Stuffed Fish in the collection of Minister of Agriculture.

**Holbrook & Co.**; *New Westminster, B.C.*
Canned Salmon.

**Johnston, John L.**; *Sherbrooke, Q.*
Fluid Beef in 2 oz., 4 oz., 8 oz., 1 lb. and 2 lb. tins; Fluid Beef Wafers, Sample Beef Powder, samples of Albumen and Fibrine, samples of Beef Biscuit and sample Cakes of Military Soup. The fluid Beef is manufactured in the centre of one of the richest agricultural district in Canada, and only beef of the best quality is tinned. It retains the flavour and the stimulative properties of the best extracts, while it adds the nutriment they lack. In the manufacture the beef is so treated as to obtain the nitrogenous compounds in a separate and concentrated form. With the object of presenting a greatly increased surface to the action of the gastric juice, and so assisting easy digestion, the beef is then reduced to a very fine powder, which, added to the Essence of Beef separately prepared on the most approved principles—furnishes a preparation—in which all the constituents of Beef are present, and in a condition which it will be found the most delicate stomach will readily digest and assimilate.

**Minister of Agriculture**; *Ottawa, O.*

Samples of Pickled Salmon, Mackerel, Herring, and dried Cod, Haddock, and Cusk; being the produce of the Nova Scotia Fisheries; also, a large collection of Food Fishes stuffed to represent their appearance when offered for sale in Canadian markets.

**Muskoka and Parry Sound District (Free Grant Lands) Immigration Department**; *Toronto, O.*

Collection of Food Fishes from the Rivers in the Free Grant Land District. The Maskinonge exhibited weighed over 40 lbs.; still larger fish are frequently caught with hook and line in these rivers. *See also* Class 69.

**Noble, B.**; *Richibucto, N. B.*

Canned Lobsters, Salmon, and Mackerel.

**Ogden, Alfred**; *Cape Canso, N. S.*

Canned Lobsters.

**Lockport Packing Co., Paysant, F.**; *Halifax, N. S.*

Canned Lobsters.

**Stayner, Chas. A., Chebucto Packing Co.**; *Halifax, N. S.*

Canned Lobsters.

**Shand, J. M.**; *Barrington, N. S.*

Canned Lobsters.

**Whinken, Co.**; *P. E. I.*

Specimens of Oyster Shells.

**Wilmot, S.**; Supt. of Government Fish Breeding Establishment; *Newcastle, O.*

Collection of Stuffed Food Fishes.

## Class 73.—Vegetables and Fruit.

Tubers: potatoes, &c.
Dry farinaceous vegetables: beans, lentils, &c.
Green vegetables for cooking: cabbages, &c.
Vegetable roots: carrots, turnips, &c.
Vegetables used for flavouring: onions, garlic, &c.
Salads, cucumbers, gourds: pumpkins, melons, &c.
Vegetables preserved by various processes.
Fresh fruit; dried and prepared fruits: prunes, figs, raisins, &c.
Fruits preserved without sugar.

**Agricultural Society**; *Guelph, O.*

Models of Fruit and Roots.

**Belanger, D. O.**; *Montreal, Q.*

Assortment of Pickles, Mustard, and Red Cabbage.

**British Columbia Advisory Board**; *B. C.*

Dried Indian Berries and Cake of same.

**Betcher, J.**; *Halifax, N. S.*

Marmalade.

**Council of Agriculture, Province of Quebec**; *Montreal, Q.*
Models of Fruit and Roots.

**Gibb, C.**; *Abbotsford, Q.*
Models of Fruit.

**Holman, John**; *St. Catherines, O.*
Models of Fruit.

**Henry, E.**; *New London, P. E. I.*
Potatoes.

**Hony, Edward**; *P. E. I.*
Surprise Potatoes.

**Leslie, & Son**; Seedsmen, Florists, and Nurserymen; *Leslieville, O.*
Models of over one hundred varieties of Apples, Pears, Peaches, and Plums. This firm has extensive nurseries and do a large export trade. The fruit trees of Canada are celebrated for their hardiness, and for fruit bearing cannot be surpassed.

**McGill, W.**; *Charlottetown, P. E. I.*
Specimens of Mangel Wurtzel and Carrots.

**Masson, George**; *Lot* 48, *Prince Edward Island.*
Potatoes.

**Minister of Agriculture**; Hon. C. A. P. Pelletier; *Ottawa, O.*
Collection of over 500 models of Apples, Pears, Plums, Peaches, Grapes, and other fruit grown in Ontario, Quebec, and British Columbia. Also a collection of models of Vegetables grown in Canada. In consequence of the great distance from Canada it was impossible to exhibit any fresh fruit in quantities, therefore models of the actual fruit were made and carefully painted to imitate the natural fruit. In addition to a large display of Gooseberries, Currants, Raspberries, and Cherries, there was exhibited from Ontario at the Philadelphia Exhibition, 1876, 1,000 plates of Apples, 200 plates of Plums, 220 plates of Pears, 92 plates of Crab Apples, 25 varieties of Peaches, 153 plates of Grapes, and a variety of Nuts including Walnuts, Butternuts, Hickory Nuts, Hazel Nuts, and Pea Nuts.

**Murray, George**; *Toronto, O.*
Collection of Apples grown in 1877, exhibited in May and June 1878. Northern Spy, dessert or cooking; one of the best apples grown. Rawles, Janet, cooking; of good quality and a long keeper. Bellflower, dessert or cooking; one of the best, makes a fine jelly. Baldwin, cooking; considered first class. Canada Red, cooking; valued most for its keeping qualities. Swaar, cooking; quality very good. Esopus Spitzemberg, dessert or cooking; very highly esteemed. Seek no Further; quality fair to good. Cooper's Market, cooking; one of the longest keepers, can be kept until autumn. American Golden Russet, dessert; one of the very best table apples. Roxbury Russet, dessert; long keeper, considered one of the best for dessert. Pomme Gris, dessert; quality very fine. English Russet; valuable for its long keeping. Rhode Island Greening; considered one of the best cooking apples.

**Noble, B.** ; *Richibucto, N. B.*
Canned Strawberries and Raspberries.

**Postlethwaite, Ridsdale & Co.**; *Toronto, O.*
Samples of Canned Tomatoes, Tomatoe Ketchup, Pickles, Onions, Horse Radish, Sauce, Red Pickle, Marmalade and Jellies.

**Selwyn, Alfred R. C.**; Director of Geological Survey; *Montreal, Q.*
Collection of Models of Fruit and Vegetables from British Columbia.

**Servos, J. D.**; *Niagara, O.*
Preserved Cherries, Plums, Strawberries, Quinces, Crab Apples, Pears, Raspberries, Cranberries, Tomatoes, Apples, &c.

**Surveyor General**; *Ottawa, O.*
Models of Potatoes from Manitoba.

## Class 74.—Condiments and Stimulants, Sugar and Confectionery.

Spices, pepper, cinnamon, allspice, &c.
Table salt.
Vinegar.
Copmound condiments and stimulants: mustard, kari, English sauces, &c.
Tea, coffee, and other aromatic beverages, chicory and sweet acorn coffee.
Chocolate.
Sugar for household purposes: grape sugar, sugar of milk.
Confectionery: sugar plums, bonbons, nougats, angelica, aniseed, &c., preserves and jellies.
Dried and preserved fruits: cedrats, lemons, oranges, pine-apples.
Fruits preserved in brandy.
Syrups and liqueurs.

**Blackwood, R.**; *Montreal, Q.*
Samples of Bottled Cider, Ginger Ale, Lemonade, Soda Water, Mineral Waters, and Fruit Syrups.

**Charlton, A. E.**; *Hamilton, O.*
Golden Syrup Vinegar, Methylated Alcohol.

**Crathern, Th.**; *Montreal, O.*
Sample of Maple Sugar, made from the sap of the Canadian Maple Tree.

**Gray, Young & Sparling**; *Seaforth, O.*
Fine, medium, coarse, and Table Salt, and natural Brine.

**Kingston Bonded Vinegar Works**; *Kingston, O.*
Samples of Vinegar and Methylated Alcohol.

**Kingstone, C. J.**; *Warwick, O.*

Three barrels of coarse, fine and extra fine Salt respectively. Price, in car loads of 70 barrels, 65 cents. per barrel. Single barrels $1; and extra fine, $1 25c.

**Lefebvre, Michel**; *Montreal, Q.*

Vinegar in Bottles and Bulk.

**McCormack, T.**; *London, O.*

302 Varieties of confectionery, including Lozenges, Conversation Rings, Mixed Pipes, Chocolate Fancy Goods, Creams in great variety, Gum and Yum Yum Goods, Jujubes, Almonds large and small, Birds Eggs, Imitation Almonds, Jargonelle Pears, Italian Creams, Nevada Comfi's, Imperial Perfections, and other fancy confectionery, nearly all made by machinery.

**Sharpe, T. S.**; *Apohagui, N.B.*

Sample of Butter Salt.

**Tester, T. W. & Co.**; *Montreal, Q.*

Samples of Pop-corn and two mammoth Corn-balls. Pop-corn in different stages of manufacture. Pop-corn is a species of Indian Corn. This Exhibit shows: 1, the corn in the cob in its natural state; 2, the corn after being popped; 3, prepared sweetened balls. This article is very nutritious and commands a large sale in Canada and the United States.

**Troop, O. V. & Co.**; *St. John, N.B.*

Samples of Vinegar.

## CLASS 75.—FERMENTED DRINKS.

Vin ordinaire, red and white.
Sweet wines and still wines.
Sparkling wines.
Cider, perry, and other beverages made from cereals.
Fermented drinks made from vegetable sap, from milk, and sweet substances of all kinds.
Brandies and alcohols.
Spirits: gin, rum, tafia, kirsch, &c.

**Arles, James**; *Carling, Parry Sound District, O.*

Hops.

**Canada Vine Growers Association, Cramp and Torrance**; *Toronto, O.*

Variety of Wines and Brandy, of Canadian manufacture.

**Casci, Vincent**; *Toronto, O.*

Six Varieties of Canadian Wines.

**Cockburn, J. P.**; *Gravenhurst, Muskoka District, O.*

Hops.

**Cosgrave & Sons**; Brewers; *Toronto, O.*

Bottled Bitter Ale, Bottled XXX Bitter Ale, and India Pale Ale in Wood.

**Gooderham & Worts**; *Toronto, O.*

Samples of old Rye Whisky, seven years old, New Rye Whisky, old Malt Whisky, and pure Spirits.

**Hamilton, Dunlop, & Co.**; *Brantford, O.*

Three Varieties of Native Wine, Claret, Catawba, and Isabella.

**Joy & Co.**; *Tilsonburg, O.*

Three Varieties of Canadian Wines: Canada, Norwich, and Denham.

**Labbatt, John**; Brewer; *London, O.*

Bottled Fall and Winter Brewed Stout in pints and quarts, Bottled Winter Brewed Ale, Winter Brewed Amber Ale, Full Brewed Pale Ale and Porter in wood.

# EIGHTH GROUP.

## AGRICULTURE AND PISCICULTURE.

### Class 76.—Specimens of Farm Buildings and Agricultural Works.

**Arless, James & Co.**; *Montreal, O.*
Model Horse Stall.

### Class 83.—Insects and Noxious Insects.

**Edwards, Thomas**; *Toronto, O.*
Wasp's Nest found in a tree near Toronto.

**Malone, Anthony**; *Garden Island, O.*
Prince Arthur Beehive. This Beehive is so constructed that by opening a door the whole shell can be swung on hinges quite clear of the moveable frames, thus enabling the Aparian to examine every brood frame without injuring or provoking the Bees.

### Class 86.—Flowers and Ornamental Plants.

Species of plants and examples of culture exhibiting the characteristic types of the gardens and dwellings of each country.

**Bear, Henry**; *Hamilton, O.*
Patent Plant Feeder and Rack.

**Hobkirk, W. H.**; *Charlottetown, P. E. I.*
Specimen of Maple Leaves in a Frame.

**Sweetman, C. A., Miss**; *Hamilton, O.*
Design in and Specimen of Skeleton Autumn Leaves in a fancy box.

# INDEX, OR ALPHABETICAL LIST OF EXHIBITORS.



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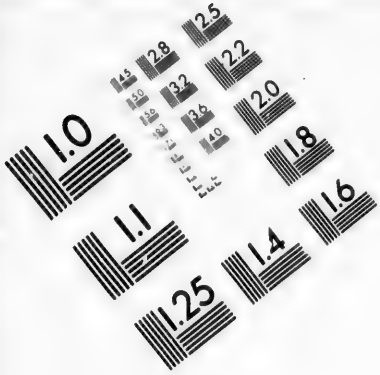
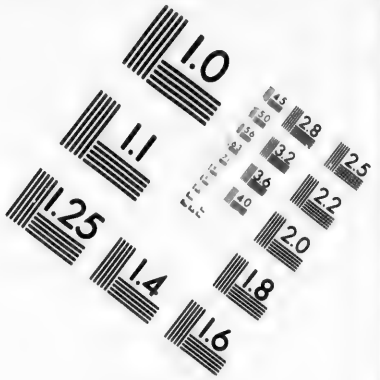
39

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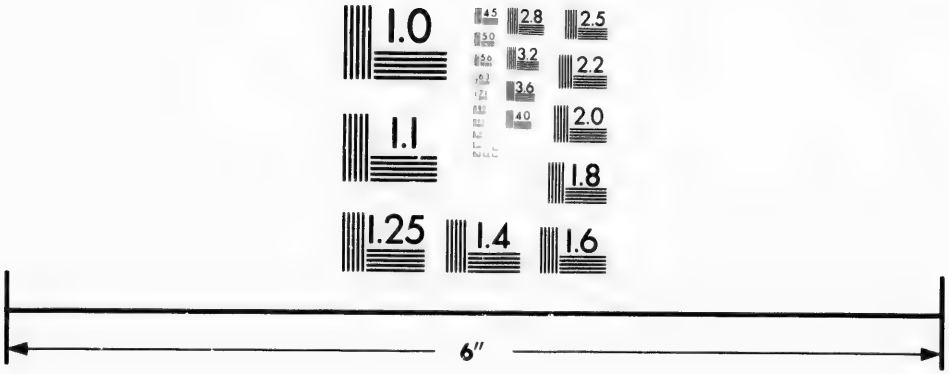
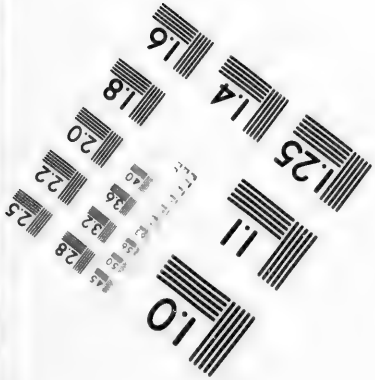
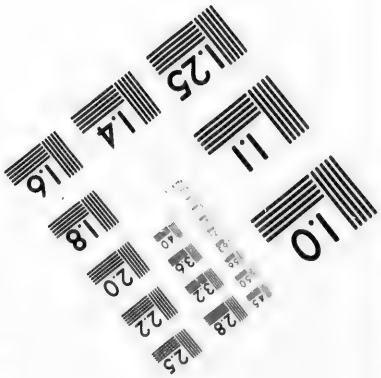



Photographic Sciences Corporation

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

## PROVINCE OF QUEBEC.







## NOVA SCOTIA.

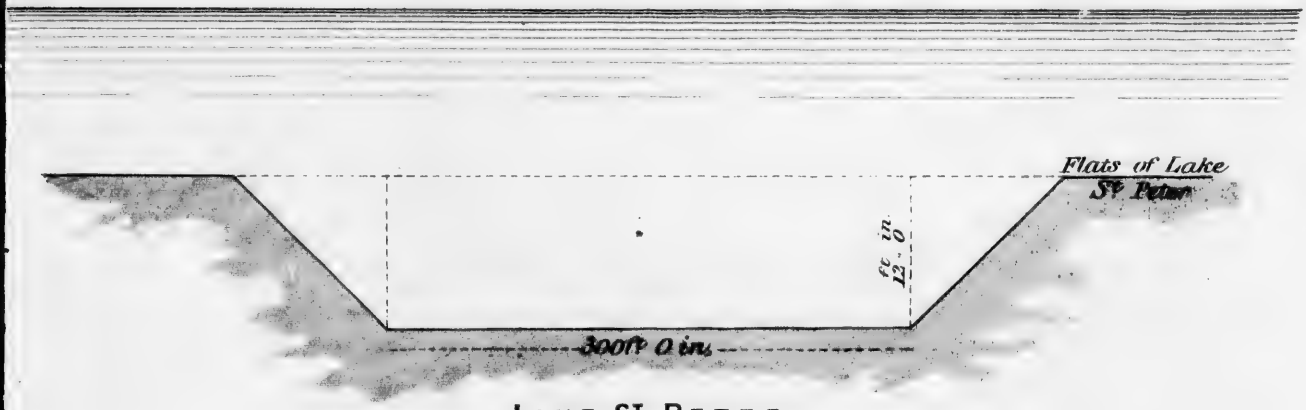


## BRITISH COLUMBIA.

LONDON:
Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.
[P 665.—5000.—9/78.]

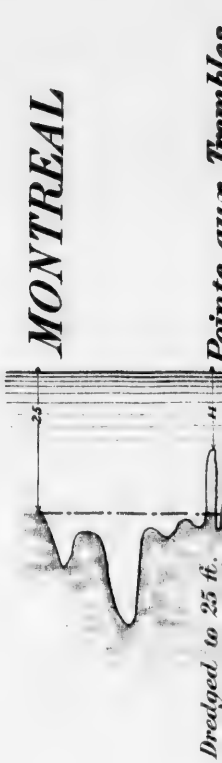
# PLANT NOW EMPLOYED

*Eight elevator Dredges (single set of buckets endless chains)*
*One Spoon Dredge (employed part of time)*
*Two boulder grappling barges*
*Eight tug boats*
*Five coal tenders*
*Ninteen hopper scows 80 to 90 C.yds. capacity*
*Daily Capacity of dredges varies with the nature of work from 150 cubic yards Shale to 3.000 cubic yards soft Clay.*




LAKE ST. PETER

*Section of Excavation at Low Water*

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*Length of Channel dredged 16½ Statute Miles*

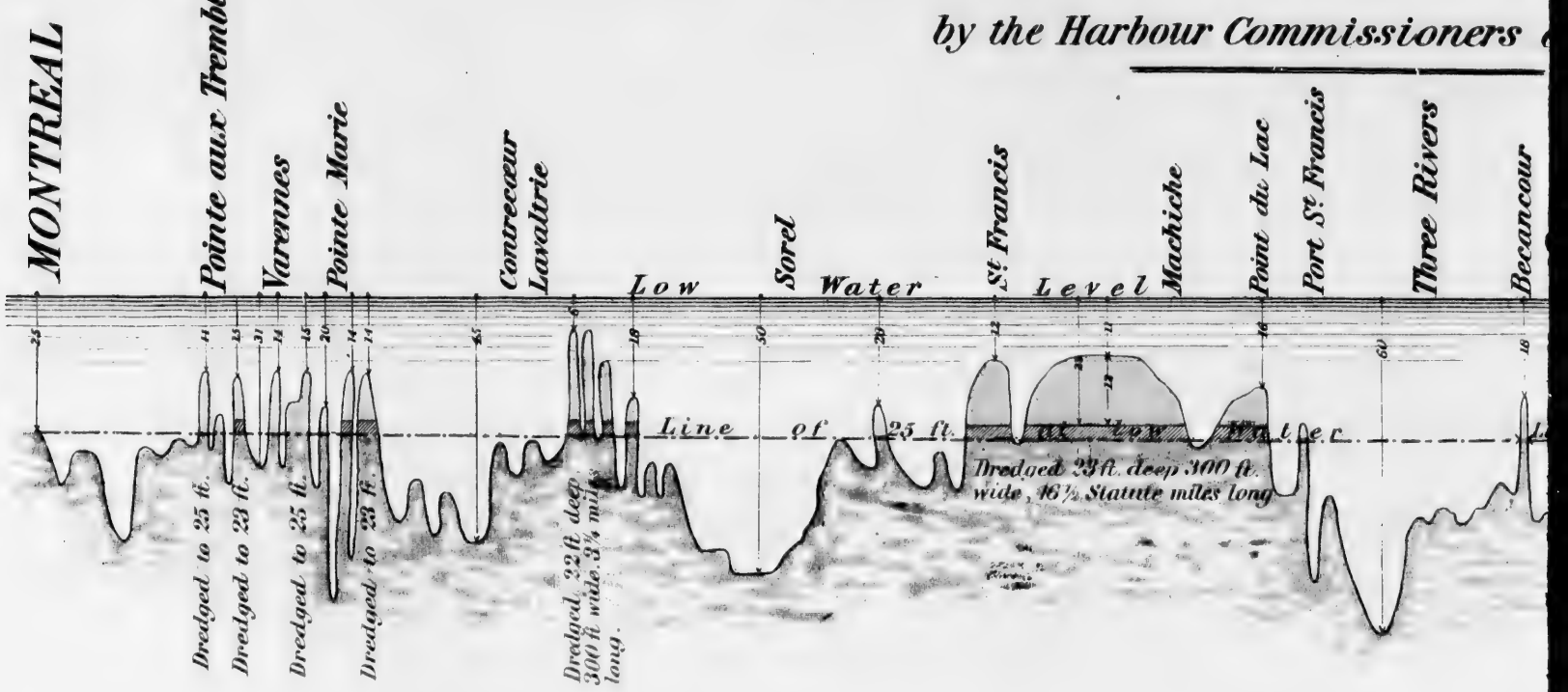
*Quantity taken out 5, 620,185 cubic yards.*

# PROFILE OF

# THE RIVER St. LAWRENCE BETWEEN

## SHEWING THE DEEPENING OF THE

*by the Harbour Commissioners*

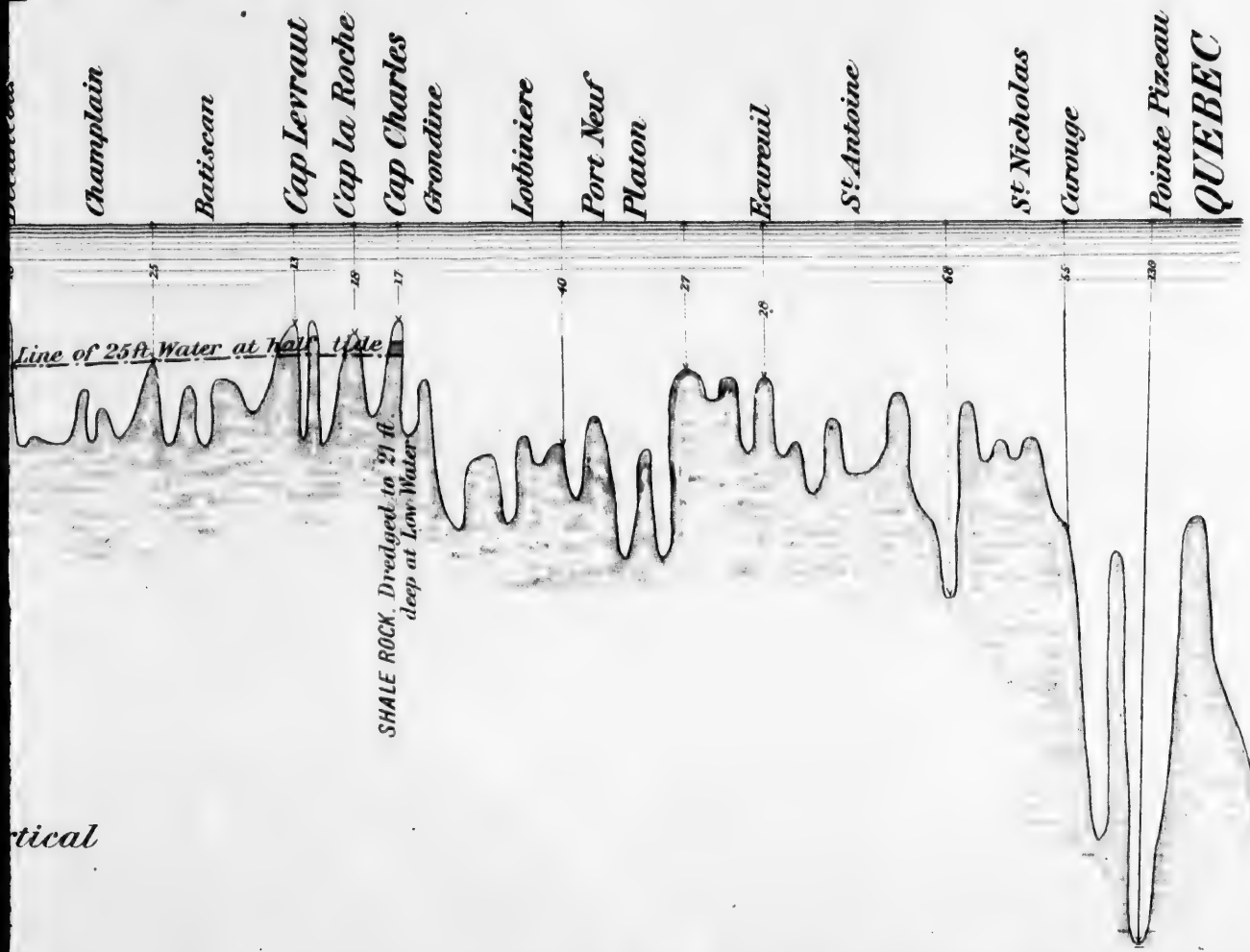



*Scales —10 Eng. miles to an inch horizontal —30 ft. to an inch vert*

# MONTREAL AND QUEBEC

## E SHIP CHANNEL

*of Montreal.*




*rtical*

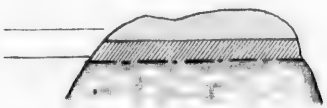
*Distanc*
*Dredgi*
*Dredgi*
*Dredgi*
*Depth o*
*Increas*
*Depth*
*Depth*
*Least*
*Aggreg*
*Expend*

*Dredgi*
*Do.*

# SHIP CHANNEL.

| | |
|---|---|
| *Distance from Montreal to Quebec* | *159 Eng. Miles* |
| *Dredging the Ship Channel begun in 1844 and continued to 1847* | |
| *Dredging resumed in 1851 and continued to 1866* | |
| *Dredging to attain 25 ft. depth resumed in 1875* | |
| *Depth of Ship Channel at low water before dredging* | *11 feet* |
| *Increase of depth effected up to 1866* | *9* |
| *Depth attained in 1866* | *20* |
| *Depth which will be attained in 1878* | *22* |
| *Least breadth of dredged Channel* | *300* |
| *Aggregate length of dredging* | *31 miles* |
| *Expenditure for 20 ft. depth* | *$1,200,000* |

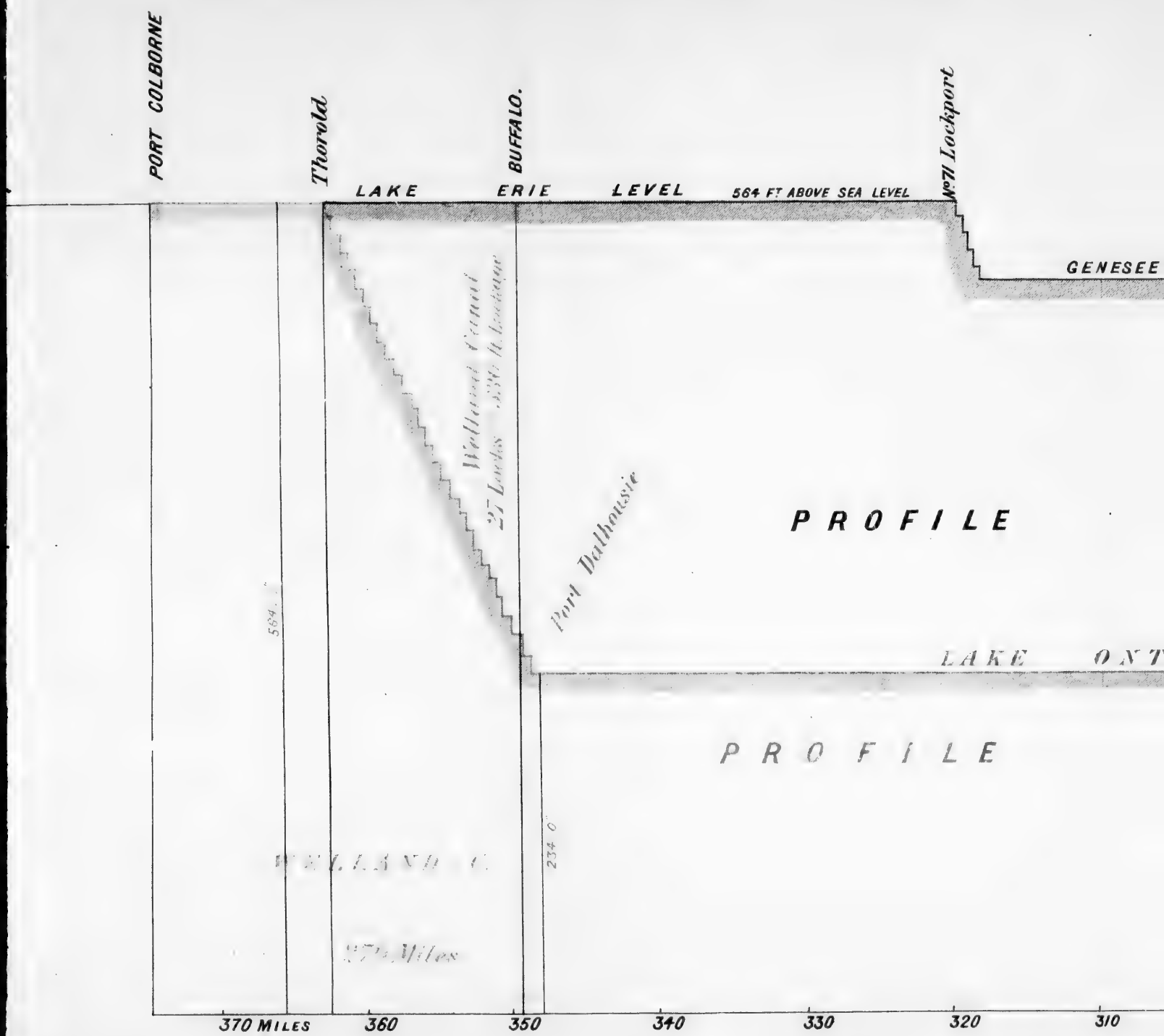
*Dredging done to 23 ft. depth at low water shewn thus*
*Do. yet to be done to 25 ft. depth „ „*



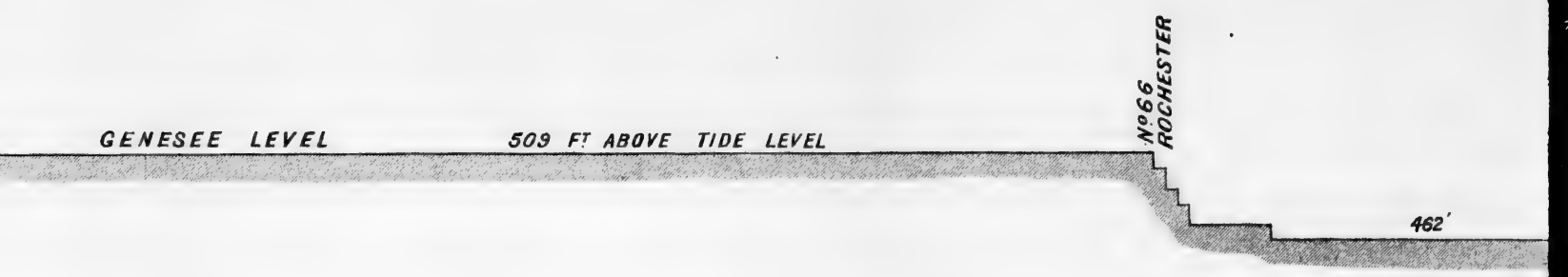
*Harbour Commission Offices.*

*Montreal 1878.*

Lithographed by W & A.K. Johnston, Edinburgh & London.


PORT COLBORNE
Thorold
BUFFALO.
No 71 Lockport
LAKE ERIE LEVEL 564 FT ABOVE SEA LEVEL
GENESEE
Welland Canal
27 Locks 330 ft. Lockage
Port Dalhousie
PROFILE
LAKE ONT
PROFILE
564
234 0
WELLAND C
27½ Miles
370 MILES
360
350
340
330
320
310

# PROFILES OF THE St LAWREN



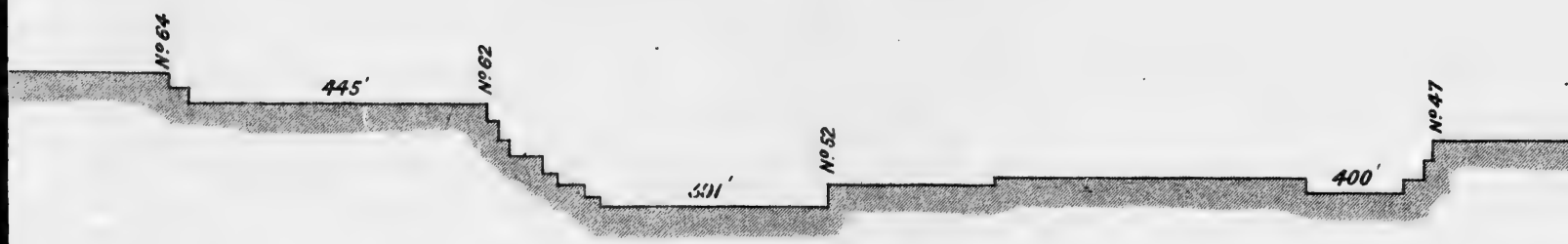

E OF LAKE ERIE CANAL


E OF THE St LAWRENCE

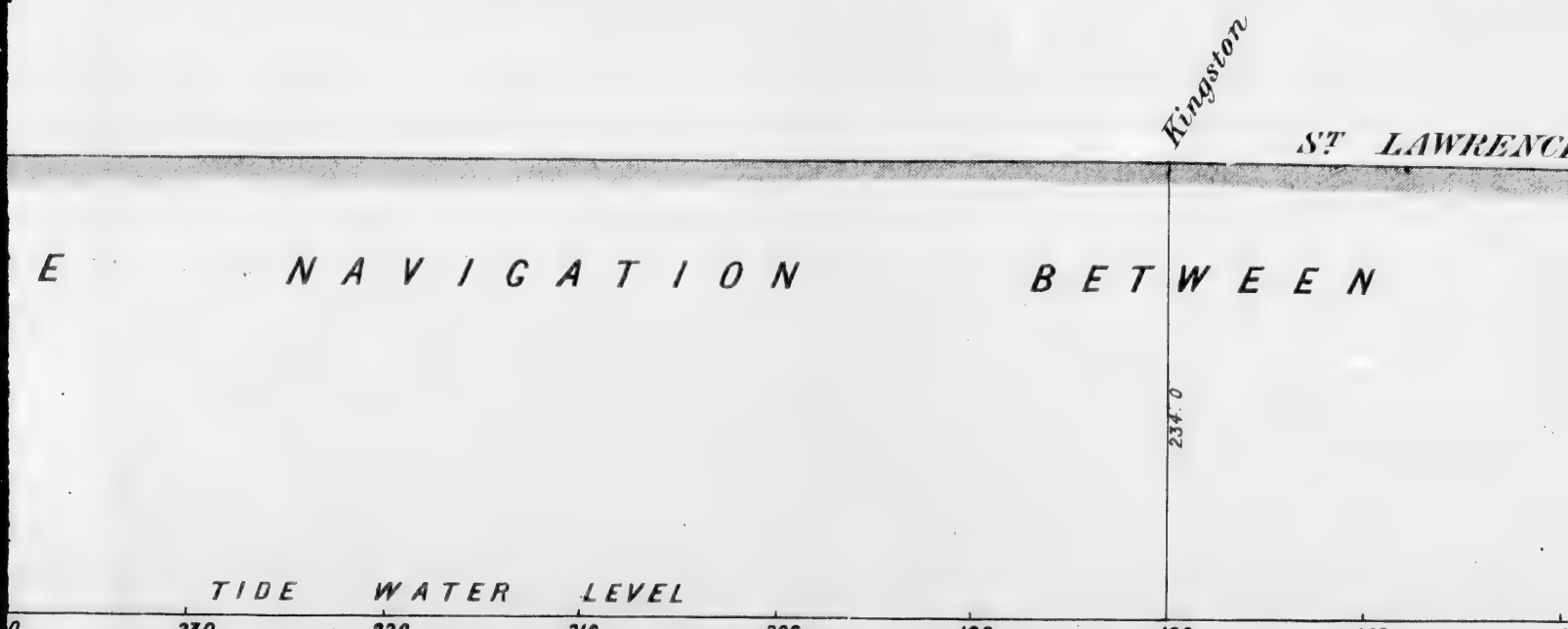
# ENCE AND OF THE ERIE CANAL ROUTES BE

*Horizontal Scale 10 Miles to the Inch*
*Vertical Scale 100 Ft to the Inch*

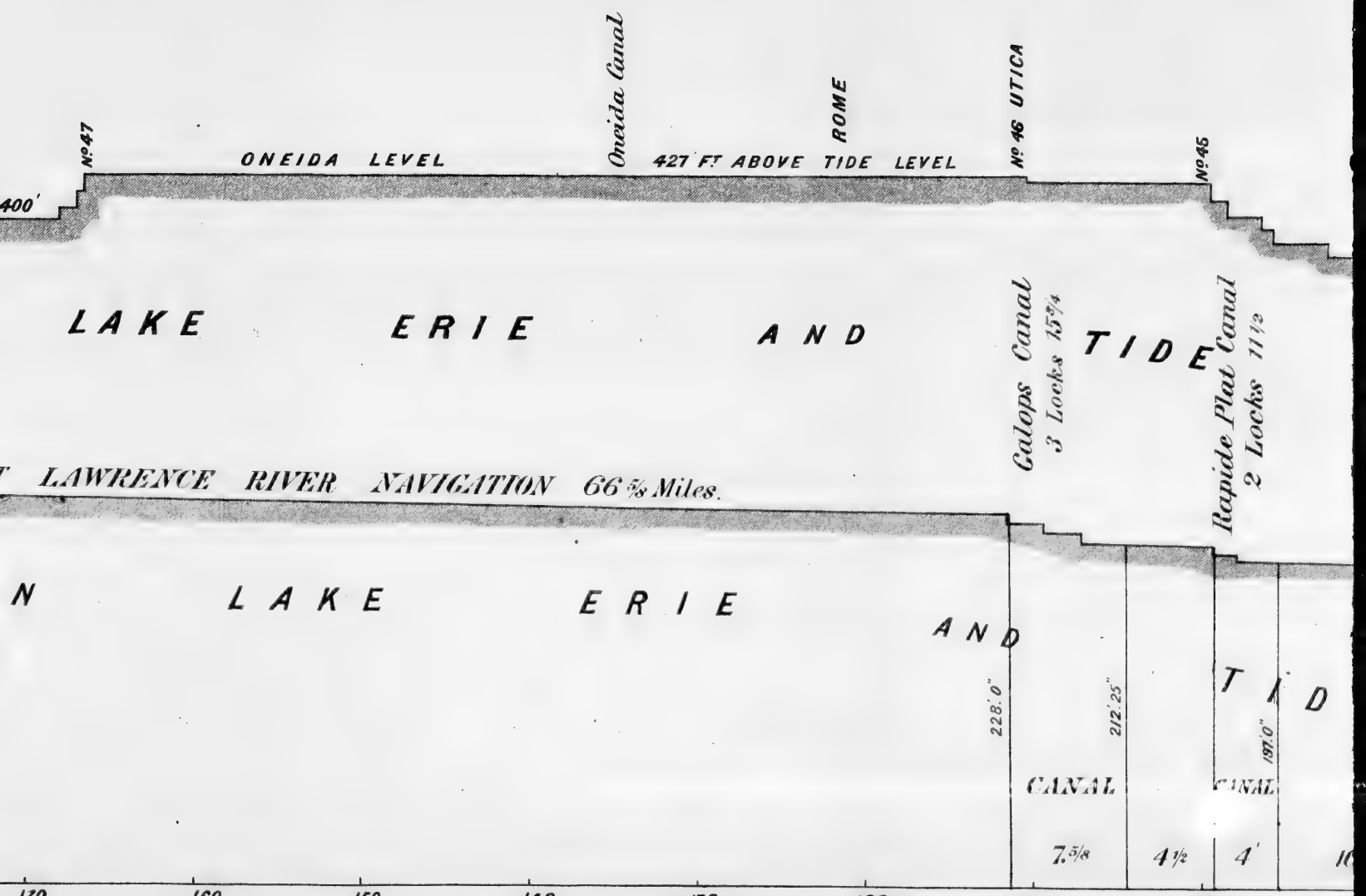
Lithographed by W & A. K. Johnston, Edinburgh & London.




NAVIGATION BETWEEN LAKE



# ES BETWEEN LAKE ERIE AND TIDE WATER

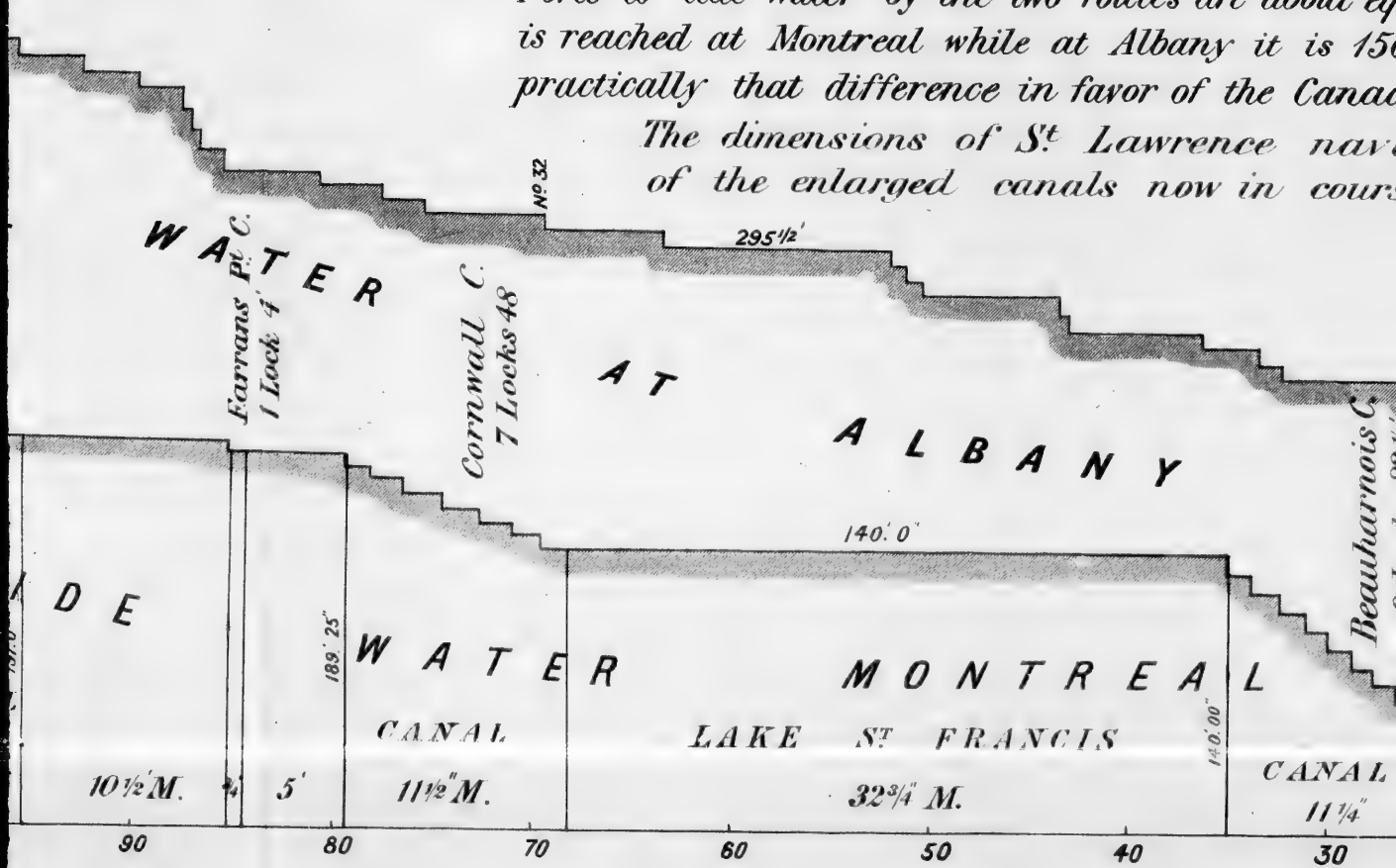


# TER.

| COMPARATIVE STATEMENT. | MILES CANAL NAV. | MILES LAKE NAV. | MILES RIVER NAV. | Nº LOC |
|---|---|---|---|---|
| *Lake Erie to Albany via Erie Canal Nav:* | 352 | " | " | 7 |
| *Lake Erie to Montreal via St Lawrence Nav:* | 71 | 208 | 96 | 5 |

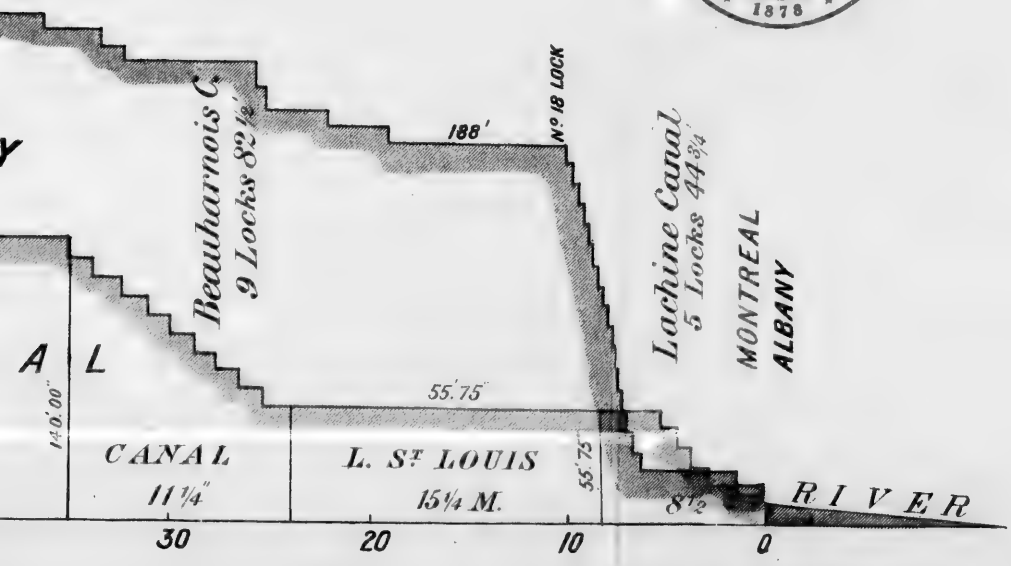
*Port Colborne being 20 miles west of Buffalo t*
*Ports to tide water by the two routes are about eq*
*is reached at Montreal while at Albany it is 15*
*practically that difference in favor of the Canal*

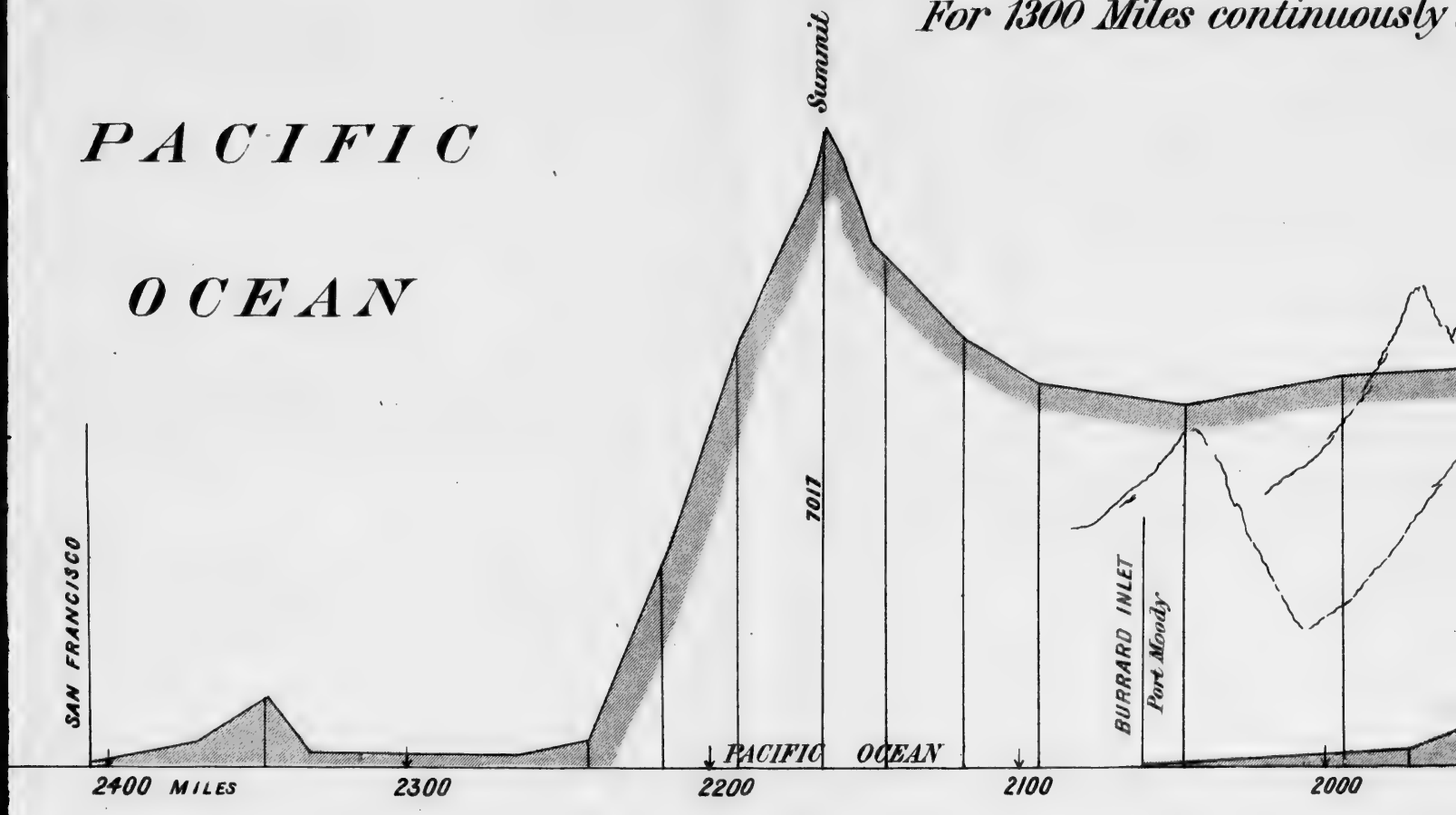
*The dimensions of St Lawrence nav*
*of the enlarged canals now in cours*



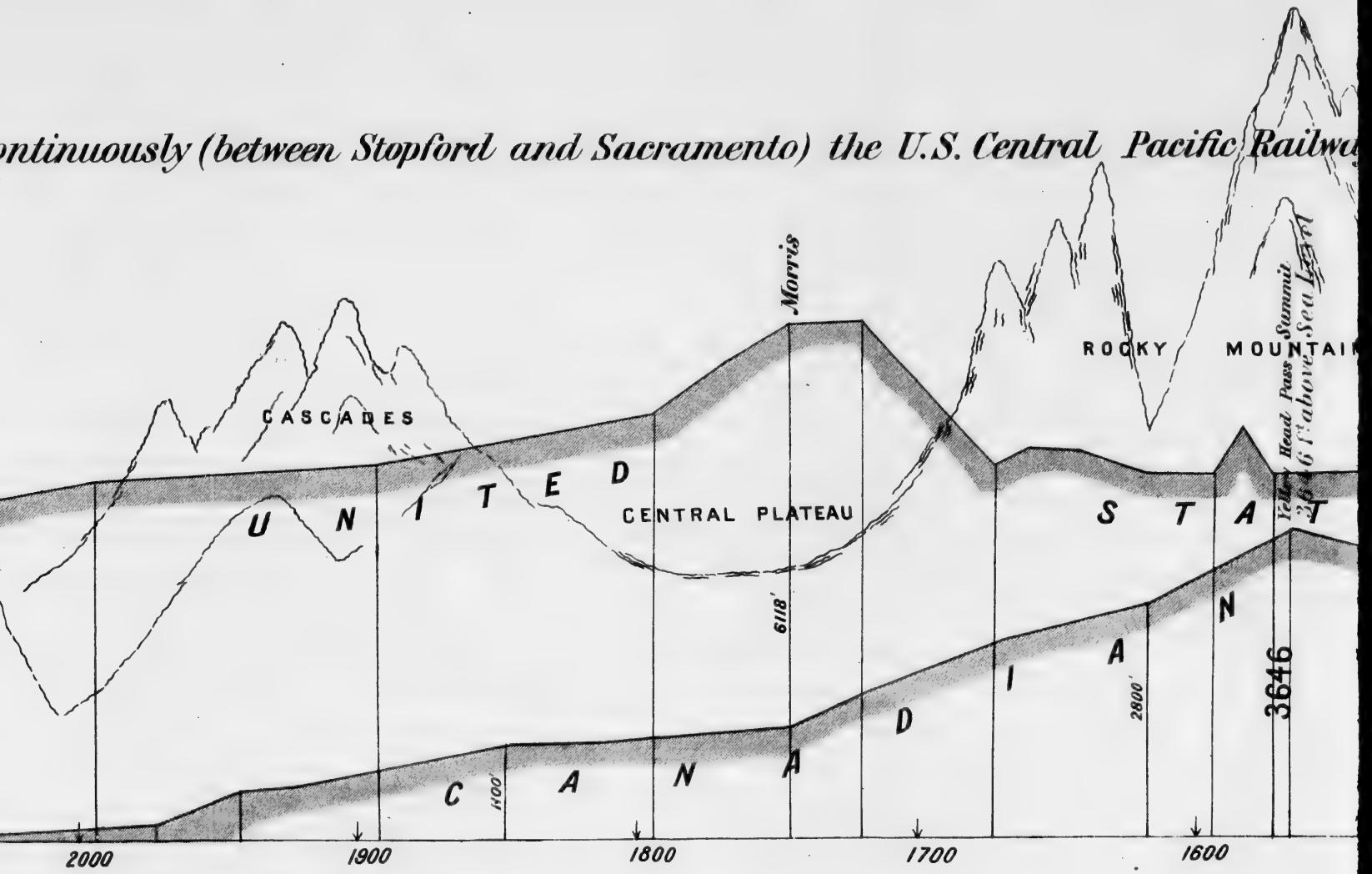
| MILES LAKE NAV. | MILES RIVER NAV. | Nº OF LOCKS. | LOCKAGE | TOTAL DISTANCE MILES. | DIMENSIONS OF LOCKS. LENGTH. | WIDTH. | DEPTH OF WATER. | CAPACITY TONS |
|---|---|---|---|---|---|---|---|---|
| " | " | 71 | 654 | 352 | 110 | 18 | 7 | 220 |
| 208 | 96 | 54 | 532 | 375 | 270 | 45 | 14 | 1500 |

*of Buffalo the distances from Lake*
*es are about equal: but as Ocean Navigation*
*bany it is 150 Miles distant there is*
*of the Canadian route*
*rrence navigation are those*
*now in course of construction.*

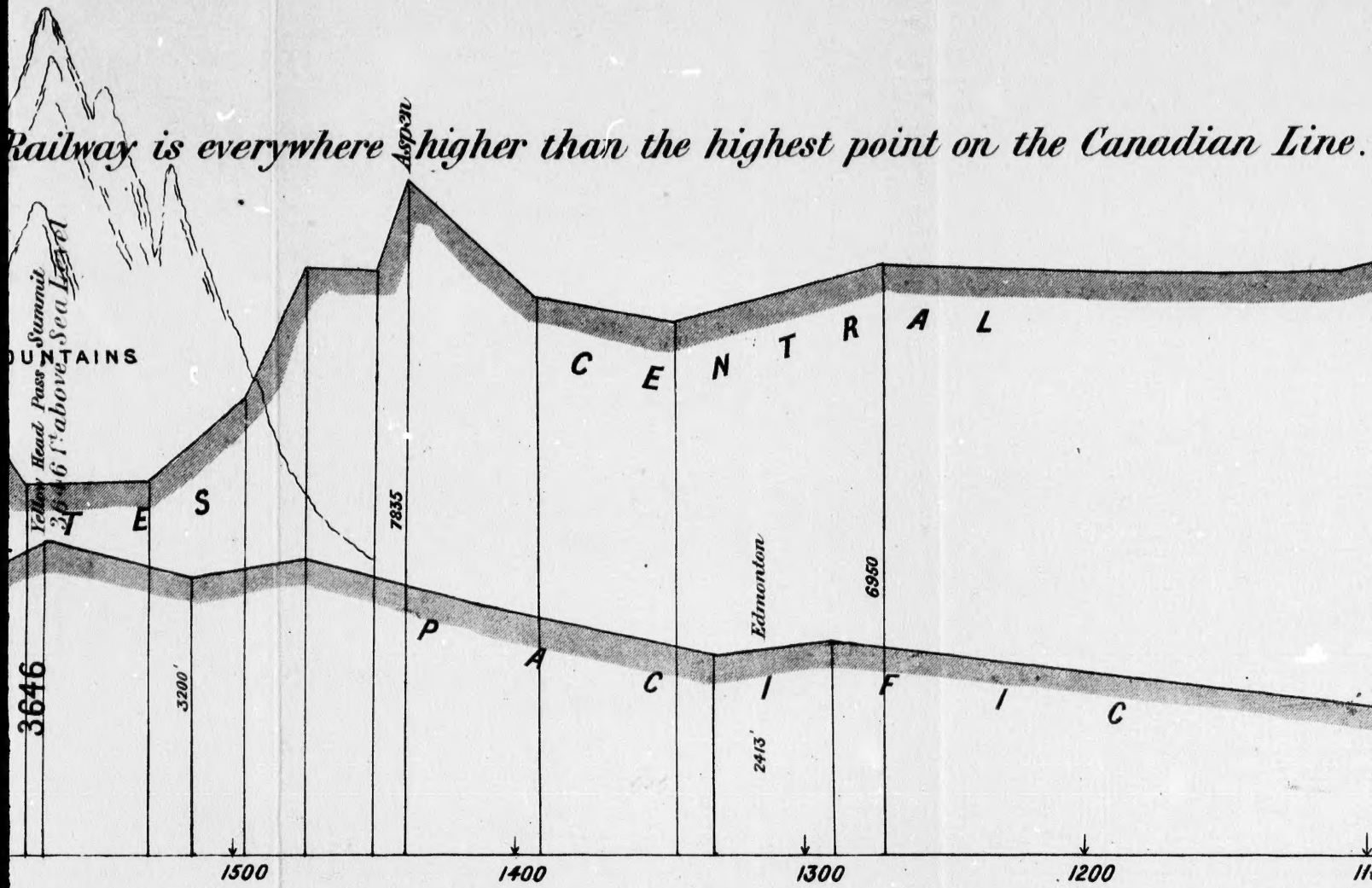



For 1300 Miles continuously
PACIFIC
OCEAN
Summit
7017
SAN FRANCISCO
BURRARD INLET
Port Moody
PACIFIC OCEAN
2400 MILES
2300
2200
2100
2000

*ontinuously (between Stopford and Sacramento) the U.S. Central Pacific Railwa*



*Railway is everywhere higher than the highest point on the Canadian Line.*

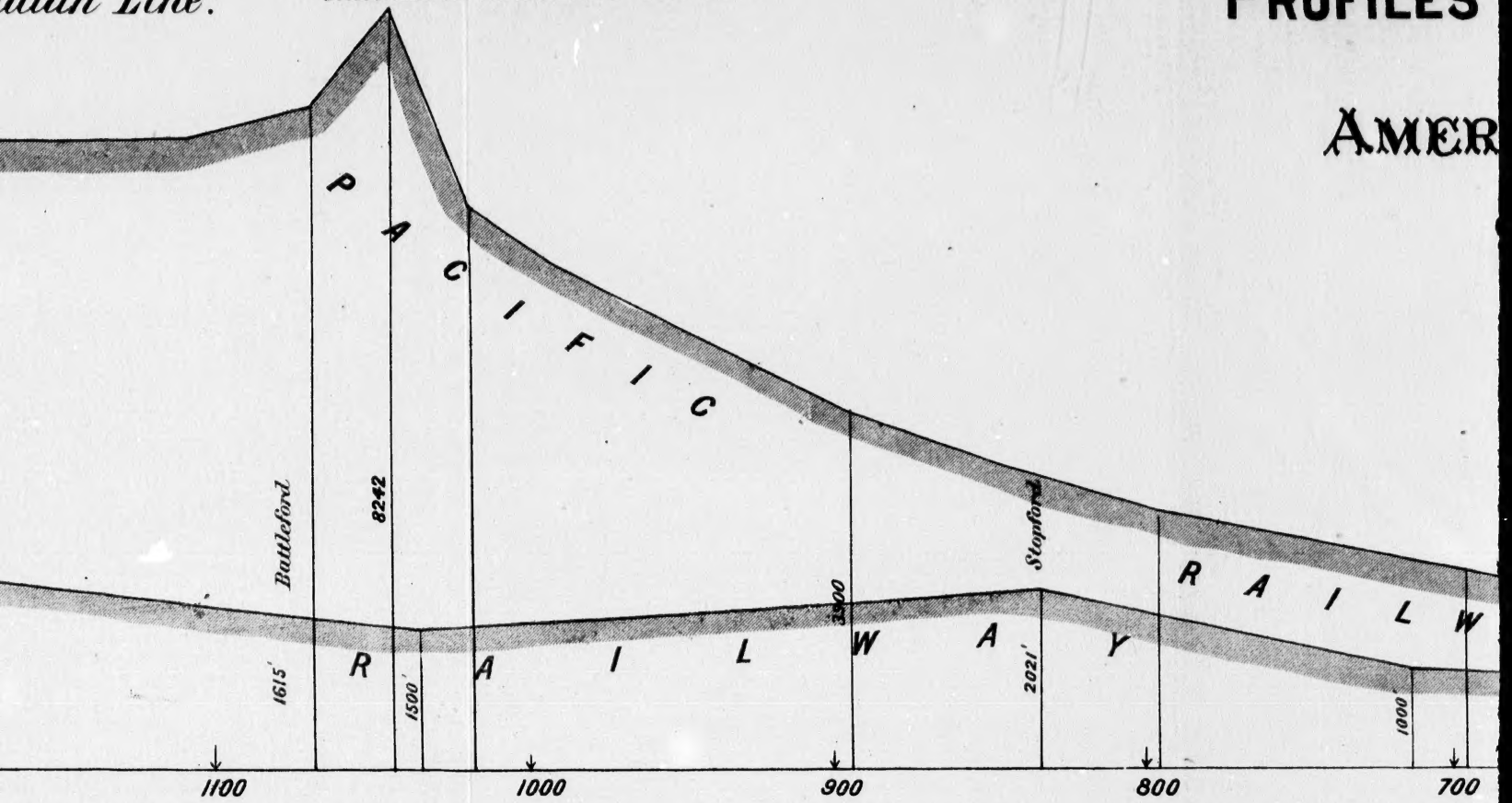


*dian Line.*

*Sherman 8242ft. above Sea Level.*

# PROFILES

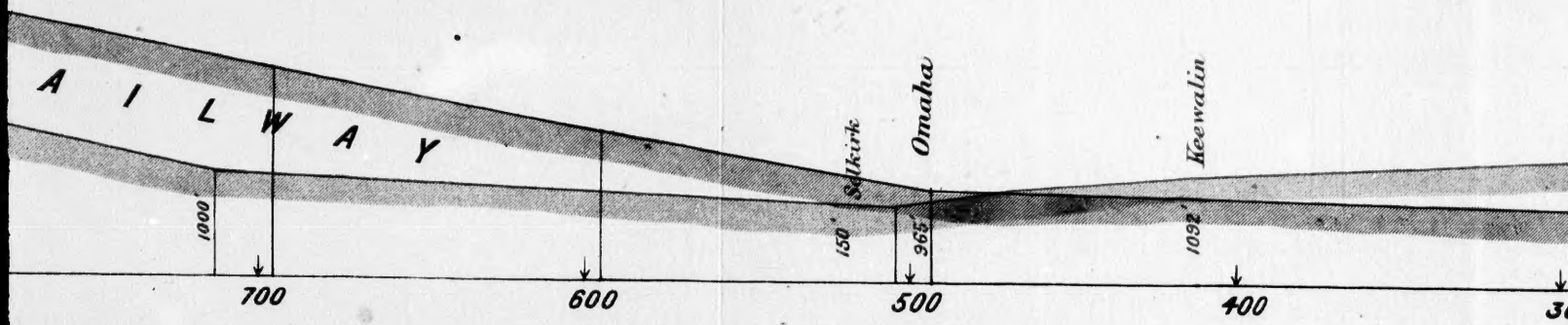
## AMER



# PROFILES OF THE CANADIAN PACIFIC RAILWAY F
## and the
# AMERICAN CENTRAL PACIFIC RAILWAY F
## Compared as to distance and E

*Maximum Grade ascending Eastward on Canadian*
*1000 Miles west from Lake Superior will not exceed 1 in 2*

Lithographed by W & A.K. Johnston, Edinburgh & London.



# LWAY FROM LAKE SUPERIOR WESTWARD

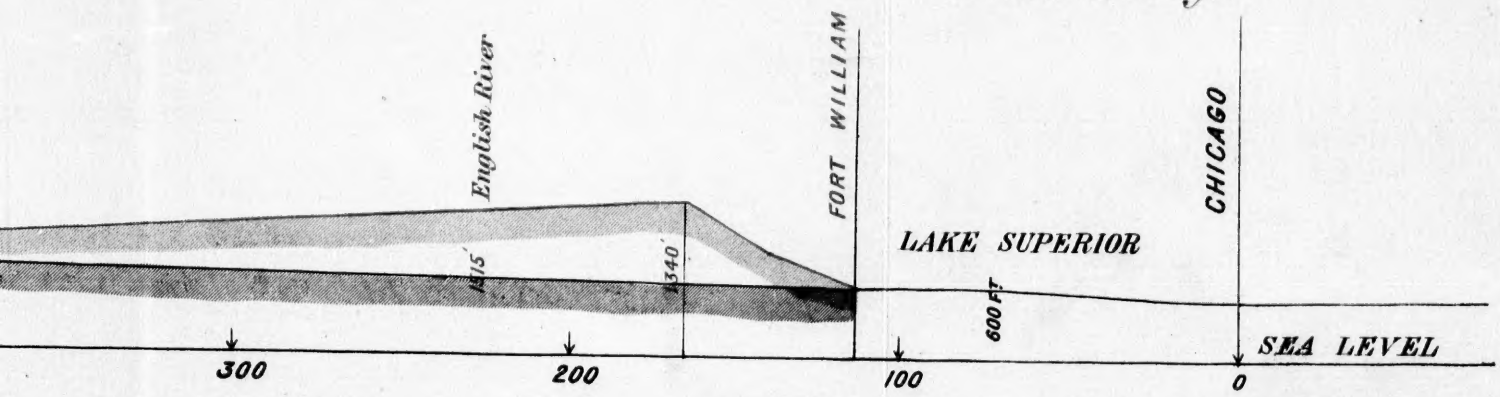
# LWAY FROM CHICAGO WESTWARD.

## and Elevation.

*Canadian Pacific Railway for*
*cceed 1 in 200 or 26½ Ft per Mile.*

urgh & London.

*Grain shipped from Fort William (the Lake Superior terminus of Can. Pac. R.R.) will reach tide water as quickly and cheaply as from Chicago.*




CANADIAN COMMISSION PARIS EXHIBITION 1878